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SOME POINTS IN THE TREATMENT OF SEPTIC COMPOUND FRACTURES.[1]

By H. M. Moran, M.B. (Syd.), F.R.C.S. (Ed.),
Sydney.

It will be conceded that the cardinal principle in the treatment of war wounds is free drainage. When a fracture, therefore, is complicated by a septic wound, it is necessary to arrange some form of immobilization which, while maintaining the fragments in good position, will allow free access to the wound.

The gunshot fracture caused by an undeflected, high velocity bullet at long range, may at times be of the nature of a simple perforation with a minimal amount of sepsis. But in the case of rifle bullets at short range, of deflected bullets at any range, of shrapnel shells, high explosive shells and bombs, it is far otherwise. Extensive destruction of soft tissues, a high degree of comminution of bone, considerable sepsis with frequently the presence of foreign body are then the conditions to be faced and dealt with.

To wage war against the sepsis, without at the same time neglecting the fracture, constituted in the early days of the war, a problem of no mean order.

Plaster of Paris casts with appropriate loopholes were tried. These immobilized the fragments in a more or less satisfactory condition, and the loopholes allowed some sort of attention being paid to the wounds. But the wound picture in these cases was a constantly changing one. Not infrequently, one had to carve out fresh loopholes at a later date, to cope with tracking suppuration; and there was ever present an anxiety as to the condition of the parts concealed. For in war wounds there can be no taking things for granted. The granulating wound of to-day is often the phagedænic wound of to-morrow.

It was natural that those, who were still mindful of the results obtained from plating under scrupulously consistent asepsis, should be lured into attempting to use the operative method. It surely requires considerable audacity, in the presence of frank sepsis, to inflict further injuries on the tissues; and the results obtained were, on the whole, in keeping with what was to be expected. One cannot with impunity inflict stab cultures of sepsis by means of screws or wire into the medulla of bones; and the price was paid in necrosis, amputation and death. It is no argument in favour of the method that occasional successes lighten the gloomy record of the cases. The very condition of comminution so frequently present made plate fixation both formidable and unsatisfactory; and even with the operation concluded the problem of immobilization with free access had still to be faced.

It became apparent then that the only satisfactory method of immobilization was by extension. The wound under an anæsthetic is cleansed and drained, the foreign body sought after and removed. The question then to decide is the form of extension suitable for the particular fracture.

The Lower Extremity.

1. The long Liston still remains with some an accredited splint, if suitable brackets are interposed opposite the wound, extension being applied by the ordinary method of plaster pulley and weight. Personally I have never been impressed with the value of this splint even for the simplest fracture of the femur. It has but a feeble power of immobilization; it does not allow the abduction of the limb necessary for fractures of the upper part of the femur; its upper end tends to slip around on to the front of the chest. Sir Anthony Bowlby,[1] however, thinks well of it. Hull[2] suggests its use at the regimental aid post as a posterior splint. It can surely claim no special virtue in the position over any other piece of timber.

2. The Balkan splint consists of an inclined plane above the bed, supported by two uprights. The leg is suspended by two slings, one above and one below the knee on the inclined pole above. Extension in the direction of the thigh is obtained through a pulley at the foot of the bed.

It is obviously of no service except at a base, but there it is a good splint, and easily improvized, but has to be dismantled when the patient is taken to the X-ray room. It is probably the best and simplest method of treating fractures near the trochanter. Hamilton Russell[3] has arranged a somewhat similar form of extension with a pulley system. Counter-extension in both cases is given by the body weight. There is always a tendency for these patients to slide down in the bed, and in Hamilton Russell's method this must disturb the parallelogram of forces. It would seem advisable to use the ordinary pad and bandage counter-extension from the good thigh to the top of the bed.

The "Hodgen" is an excellent splint, rather complicated, and requiring delicate adjustment.

3. Robert Jones[4] recommends the Thomas's knee splint for practically all thigh fractures except those near the trochanter, for which he has devised his abduction frame, and also for fractures involving the knee joint and for those through the upper and middle thirds of the leg itself. A preliminary reduction is insisted on. Plaster extension is got from a bar 6-7 inches below the foot and counter-extension from the padded ring pressing against the tuber ischi. It is the most valuable and versatile, simple splint; it is excellent for transport, and allows good access. The knee, however, is kept straight and stiff, and the tense muscles require a greater extending force to overcome them. The knee joint cannot be exercised during convalescence. Hey Groves,[5] who believes the preliminary reduction to have no real value, maintains that the

[1] Read at a meeting of the New South Wales Branch of the British Medical Association, on December 15, 1916.

extension power is not sufficient to cure any gross displacement.

Cuthbert Wallace apparently for the same reason has added to the "Thomas" a powerful screw and handle, capable of giving an extending pull of very many pounds. Max Page[6] has fashioned a Thomas's splint, with slight modifications, out of the aluminium strips provided in the War Office field fracture box.

4. Hey Groves' splint consists of a double inclined plane made of ¼ inch mild steel, and is fitted with a cross-piece of ¾ inch flat steel to prevent the splint rocking. The limb rests on slings which may be made of flannel bandage or of rubber. Extension is obtained in the line of the thigh by a weight and pulley fixed on to the end of the splint. Counter-extension is got by a sling from the uninjured leg to the top of the bed. This helps to procure abduction of the injured extremity. The splint is cheap, light, and can be easily packed in nests that occupy very little space. It suffers from the same defect of all methods of suspending the thigh, in that there is always a tendency for suppuration to track upwards, but this should be looked upon rather as a fault in the preliminary drainage of the wound. I have used the splint extensively, and it has no superior as regards either the results obtained or the patients' comfort. For transport purposes it is somewhat more clumsy than a Thomas's splint, but it can be used even at the aid post, for the cross-piece can be fixed securely to the ambulance stretcher.

Its superiority over the Thomas's splint lies in the fact that the hip and knee joints are flexed; that more thorough extension can be obtained with relaxed muscles; that the weight can be varied according to the demands of the case; that there is no painful ring pressing on the buttocks and in constant danger of being fouled, and that early active movements at the knee joint can be carried out. The method of extension commonly used is the ordinary plaster one. I have had no personal experience of Codivilla's pins or Hey Groves' screw clamp for extension purposes in cases of great displacement. Theoretically it seems risky to drive a steel pin through the condyles when near by lurks septic infection. Hey Groves certainly waits till the severity of the infection has declined. At the 21st General Hospital I saw a number of Hey Groves' cases in which the pins had been used, and had caused no trouble. In other cases, however, septic sinuses persisted, and were troublesome.

It is harder still to justify the transfixion by pins of the head of the tibia, for not merely are the ligaments of the joints liable to be over-stretched and permanently weakened, but the opportunity of early, passive movement of the knee joint is lost.

For the tibia and fibula Hey Groves has provided another simple and effective splint. It consists of a wire frame, which goes down each side of the leg, and is bent at the knee to support the joint about 12 inches from the bed. Counter-extension is got from the thigh, which rests on a sling. A movable foot piece with a ring for the extension cord is provided, and extension obtained from a spring or a suspended weight.

The Upper Extremity.

For septic wounds of the shoulder joint and septic compound fractures of the upper end of the humerus, the arm has to be maintained in an abducted position, slightly rotated inwards. Extension can be applied to the arm in this position by keeping the patient in bed and applying ordinary strapping extension through a pulley arranged on a special upright near the head of the bed.

In cases where the fracture is not so high up a Thomas's knee splint with extension can be similarly arranged. For most cases, however, this is clumsy, and requires a long confinement to bed. The method is obviously of no use for transport. The Borchgrevink type of splint is an excellent and simple model. It consists of a Y-shaped wooden splint, with a padded crutch for the axilla. Plaster extension is used with a cord which, running round a pulley, is attached to an elastic band on the inner side of the splint.

The model which I show was made at the splint factory at Alexandria, under the control of Mr. Hey Groves. The spring at the end when bent to a right angle gives an elastic pull of 6-8 lbs. The forearm is carried in a sling. The one trouble likely to arise is pain from pressure in the axilla. This can largely be avoided by suitable padding. In cases where a wound is present in the inner side of the arm, a wire model can be used. The effectiveness of this splint can be seen by the way in which the injured patient can move and walk about, without fear of pain, which the slightest jolting causes in those cases treated without suitable extension. The patients themselves are very enthusiastic in their appreciation of it.

For the forearm there are several models, in all of which the principle is the same, but in which there are adaptations in accordance with the varying position of the wound.

The posterior angular splint is a frame modelled on Borchgrevink's posterior splint, which was of wood. The forearm lies in the metal frame, which is attached by means of a hinged joint to the posterior arm piece. It thus allows some movement at the elbow joint. Extension may be got round a pulley to an elastic band, or by means of an elastic spring or a butterfly screw. The model I show is an anterior angular splint on the same principle.

An antero-internal splint on the same lines allows very free access to the outer and posterior parts of the forearm.

Lastly, for compound fractures of the metacarpus Mr. Hey Groves has provided a simple extension frame, allowing of extension to be obtained through the fingers by means of plaster, a cord and a butterfly screw.

Most of the splints which I have mentioned are simple in construction and cheap to make. They all embody the one principle of using extension to overcome the muscle spasm, which is the greatest cause of deformity. Personally, I owe a debt to Mr. Hey Groves for his kindness in showing me his cases when he was surgeon to the 21st General Hospital at Ras El, and for the splints which in great numbers he supplied our Hospital from his factory. The best compliment one can pay to these splints is to

say that intimate acquaintance and regular use only served to make everyone more enthusiastic about them.

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[2] Hull, "War Surgery."
[3] H. Russel, *The Medical Journal of Australia*, August 12, 1916.
[4] Robert Jones, *British Medical Journal*, January 16, 1916.
[5] Hey Groves, "Modern Methods of Treating Fractures."
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[7] *British Journal of Surgery*, January, 1915.

SOME NERVE INJURIES SEEN ON ACTIVE SERVICE.[1]

By **A. E. Mills, M.B., Ch.M. (Syd.),**
Honorary Physician, Royal Prince Alfred Hospital, Sydney.

I propose in this short paper to make some remarks on injuries to the peripheral nerves, and on some cases of functional disorders of the nervous system. The injuries to the peripheral nerve were almost all due to the effect of high velocity bullet wounds. These injuries had occurred many weeks before coming under my observation. One is apt to lose sight of the fact that a bullet travelling at high speed has a lateral as well as a forward explosive force. The almost insignificant scars of entrance and exit give no idea of the amount of damage wrought to the nerves and other structures by the passage of the bullet. The course of the bullet may not have been immediately adjacent to the nerve or nerves found to be affected, but the lateral explosive force of the missile was so great as to shatter or damage structures severely, especially nerves, in proximity to its course.

The track of the bullet is always marked by an extraordinarily dense scar. Nerves in the vicinity were often times found bound up in this scar tissue. The function of the nerves was either abolished or markedly interfered with. It might be inferred that the damage to the nerves was due to the constricting effect of the scar tissue. In some instances this undoubedly was the case, but in other instances, after removal of the scar tissue, the nerve itself was found to be smashed and severed. Frequently, in cases where a peripheral nerve was found to be paralysed as the result of a bullet wound, even when the course of the bullet was at some little distance from the nerve, the nerve sheath, though attached to or bound up with the scar of the bullet track, appeared normal when freed from the scar. Seeing how great the damage done to the adjacent structures was, I suggested that in all cases of indirect injury, the nerve sheath should be opened, so that the state of the nerve fibres could be seen. In many such cases, upon opening the sheath the nerve fibres were found to be destroyed, although the contour of the nerve appeared to be comparatively normal.

I have frequently observed that when the electrodes from a Faradic battery were applied to a nerve above the seat of injury of that nerve, an injury evidently not sufficiently severe to have abolished its power to transmit electric impulses, a contraction of the muscles supplied by that nerve was obtained; but when the electrodes were applied to the nerve at the seat of injury, there was either no response or a greatly diminished one. Evidently the scarred and injured sheath acted as an obstacle to the passage of the current to the nerve fibres. Further, although the nerve, despite its injury, may be capable of transmitting electrical impulses, it may still be incapable of conveying voluntary impulses. The nerve fibres, when exposed by opening the sheath, may appear normal; but the lateral explosive force of the bullet has wrought its ill-effects. The lymph circulation on the nerve fibres has been damaged, the nutrition of the fibres has been seriously interfered with. The effects of this nutritional disturbance is to cause an overgrowth of fibrous tissue around individual nerve fibres.

I had the opportunity of seeing sections of a sciatic nerve injured by a bullet whose course was at some little distance from the nerve. It was wonderfully instructive to note the widespread effects of the injury. Extending between and around the nerve fibres was a definite fibrous overgrowth, remarkable evidence of the nutritional disturbance that results to the delicate nerve structures within an unruptured and apparently little-injured nerve sheath. To say that the injury to the nerve in such cases is simply concussion is to state only part of the effects produced. One can but believe that such injuries are the result not only of concussion, but of severe disturbance of the nutritional circulation of the nerve fibres themselves. Furthermore, the complete recovery of function of a nerve so injured is, in view of the histological appearances, scarcely to be expected.

Where there is complete division of a nerve there will necessarily be complete absence of all functions. But I would insist that complete absence of function does not imply that the nerve has been actually severed by the bullet in its course through the limb. As I have already indicated, the nerve may be so grievously injured by the explosive effects of a bullet passing at some little distance from it, that it is destroyed over a certain segment. I have seen cases where, indeed, the nerve sheath was apparently intact, and yet the nerve fibres within were completely ruptured, and in their place only a mass of fibrous tissue was to be seen. Happily the results of the bullet are not always so severe. The fibrous scar that marks the track of the bullet may be attached to a nerve and cause impairment of function by its constricting effect. This effect, if not sufficient to destroy the nerve, always produces pain; pain of an agonizing and persistent character, with diminution of functions.

One such case was that of a sergeant who received a bullet wound in the right thigh posteriorly. The bullet did not directly affect the sciatic nerve, yet the pain in the foot in the area of distribution of the sciatic nerve was intense. Before coming under our observation he had received morphine freely. There was some impairment of motive and sensory functions. A diagnosis of irritation due to partial constriction by scar tissue was made. This was con-

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on December 15, 1916.

firmed by operation, when a fibrous band attached to the main fibrous mass caused by the bullet was removed, and the nerve was freed. The pain was relieved, the nerve regained its functions, and in a short time morphine was no longer necessary.

In that class of case already alluded to where a nerve, apparently sound to all outward appearance, was found on microscopical examination to show marked interstitial fibrosis, the signs are very interesting. Areas anæsthetic to tactile and painful impressions may be found. These areas will not be co-terminous nor of equal extent. The area of tactile sensibility may easily overlap that of protopathic sensation. This observation, which I was able subsequently to confirm, was made by the Demonstrator in Anatomy in Manchester University, Dr. W. H. Wood. It is undoubted proof that the nerve fibres are not completely ruptured, for in that case the anæsthetic tactile and painful areas correspond. We know from actual experiment on man that, after severance of a nerve, the protopathic sensation returns earlier than epicritic sensation. In tabes dorsalis, too, it is well-known that painful and tactile anæsthetic areas are not co-extensive. I would suggest as an explanation of this observation that some fibres are more delicate and more susceptible to injury than others.

Probably protopathic sensation is a more primitive manifestation of nerve function than epicritic sensation, and therefore less susceptible to injury. The diagnosis of such cases can be made with a considerable degree of certitude; but the treatment is beset with difficulties. All the cases show improvement up to a certain point; but sooner or later the condition becomes stationary. If there be little diminution of function, but much pain—pain experienced while the limb is at rest—an operation to remove the irritant, which in most cases will be found to be due to constriction by fibrous tissue, will give complete relief.

Where, on the other hand, after the lapse of some weeks there is still marked impairment of function, with or without much pain, an operation is to be carefully considered. I would suggest that in all such cases, even where the nerve sheath has been freed from any surrounding fibrous tissue, the sheath should be opened. That will show whether the nerve fibres are more or less intact; but it will not reveal whether there is an interstitial fibrosis. The question of resection of the nerve and anastomosis of the ends will have to be carefully considered. It is obvious that with many ruptured nerve fibres there is little chance of the restoration of function. On the other hand, in cases where the nerve fibres are apparently intact, but where a marked disturbance of function has persisted, where there is no constriction influence of fibrous tissue, or where that influence is insufficient to account for the impairment of nerve function, a resection with anastomosis is, in my opinion, not only justifiable, but to be recommended.

Of functional diseases of the nervous system I wish to make a few observations. I saw very many of these cases. A careful examination will prevent many mistakes; but in a certain number, if the observer falls into error, it must not be counted unto him for unrighteousness, for the difficulties are great and the pitfalls many.

An officer received a bullet wound through the calf of the right leg. There was the usual small scar of entrance and exit. No thickening, marking the course of the bullet, could be felt. He complained of pain, especially after walking, and inability to dorsiflex the foot beyond a certain point. There was no wasting of muscle, no impairment of sensibility in leg or foot. All the muscles responded well to faradism. My friend, Dr. Dunhill, saw him with me. I was of the opinion that he exaggerated all his symptoms. Dr. Dunhill was inclined to agree me, but suggested that he should be anæsthetized. Under the anæsthetic dorsiflexion was impossible. Using considerable force, a loud snap was heard, evidently the rupture of a massive fibrous band binding down the muscles, preventing their complete extension. He made a good recovery. Unfortunately for me I had previously expressed to the officer my opinion as to the nature of his complaint. He resented, and quite rightly so, my suggestion of malingering. When I learned of my mistake I took the first opportunity to confess my sin to the maligned officer, who charitably forgave me.

Of functional paralysis of the limbs I saw a goodly number. One case in particular impressed itself upon me. A private a day or two after the landing at Gallipoli was standing on the edge of a ridge; a bullet grazed his ankle. Whether he lost his balance as a result of this or not I cannot say. At any rate he fell over the edge, a distance of 30 feet. When found, he was unable to move his lower limbs, and had no sensation in them. He was in the same condition when I saw him three months after. A diagnosis of fracture-dislocation of dorsal spine had been previously made, and, indeed, laminectomy was contemplated. A careful examination showed there was no interference with sphincters. There was no wasting of muscles, no rigidity, no alteration of reflexes; but he could not move his limbs. His legs were quite anæsthetic to painful stimuli. I employed a method of testing the accuracy of his statements—a method I have often employed with advantage. Impressing upon him the necessity of care in his answers as to whether he could feel a painful pin-prick, I told him he was to say "no" when he could not feel and "yes" when he did feel. To each prick over the anæsthetic areas he replied "no." As one approached that part of the body where sensation was undisturbed, his reply to each stimulus was "yes." On examining again over the anæsthetic areas in a similar manner, I found his answers did not correspond to those given before. The evidence was against him. He was assured that he would get well, that as soon as he could walk he would be boarded and returned to Australia, for to retain a soldier with such an unstable nervous organization is unprofitable and an economic waste. After may weeks he had improved to such an extent as to be able to walk. He was then boarded and recommended to return to Australia. More or less allied to such cases are those where there is loss of power to produce certain movements of the

limbs. I will relate one case. A private, in civil life a barrister, received a bullet wound above the knee. The bone was uninjured; there was no evidence of involvement of the external popliteal nerve. Still he was completely unable to use his peroneal muscles. Any attempt to do so brought into action the opposing groups of muscles. He was assured that recovery would be certain, that he would soon be fit to get his commission, which had been promised. He was rapidly regaining power over the affected muscles. Unfortunately, one day he was seen by a doctor friend, who told him he feared that the nerve to his muscles was severed. He returned to my care in the same condition as I had first found him. We had all our trouble over again; but I am glad to say that eventually he made a good recovery.

I had intended to make some observations on heart affections resulting from the stress and strain of active service, but I feel that I had better leave that for a future occasion.

SOME IMPRESSIONS OF MEDICAL WORK AT THE FRONT.[1]

By **J. Morton, M.B., Ch.M. (Syd.),**
Honorary Assistant Surgeon, Royal Prince Alfred Hospital, Sydney.

Time is limited, and I shall refer very briefly to some impressions brought away by me of the work at Lemnos Island with No. 3 Australian General Hospital.

Firstly, with regard to the surgical work. The outstanding idea in my mind is the importance of the time element in the treatment of infected wounds. Unfortunately we got there many severely wounded men from two to four or five days after the receipt of their injuries, who had got preliminary but often imperfect surgical attention. What might have been a safe and early recovery became too often converted into a condition of severe and sometimes fatal sepsis. This was to a large extent unavoidable under the circumstances, but the necessity for surgical intervention at the earliest possible moment after injury was forcibly impressed upon my mind. This of course has a special significance in the matter of abdominal wounds. In all bad wounds provision must be made for effective drainage without delay.

With regard to the treatment of severe wounds, I must say that I went away with the feeling that antiseptics had come into their own again, and I was glad to hear that new antiseptic preparations had been found to combat infections of almost every degree of virulence.

I have learnt, however, to put more reliance in free drainage and the constant application of hypertonic saline solution than in any of the old or new antiseptics.

Where continued immersion of the part in a saline bath could be practised, I think the best results were obtained. For loosening dressings comfortably and hastening the removal of blood clot and sloughs peroxide of hydrogen is extremely useful.

There is no doubt to my mind that we should at Gallipoli have used stationary hospital ships, well staffed, and near the Peninsula. These would have made excellent clearing hospitals, through which all wounded could have been drafted to Alexandria or Cairo, instead of letting them take their chance on any ship and for any destination. A few ships running to Alexandria—only two or three days' journey—could have kept the stationary ships cleared. As things were, well equipped, and badly equipped boats were filled with cases indiscriminately, and sent off, most often to England, not to return for weeks instead of days.

The advantages of hospital ships over the shore hospitals were obvious. They possessed everything we so badly needed. For example, they had plenty of food and convenience for cooking. Plenty of fresh water, hot and cold, not to mention steam and ice. A simple and perfect means for the disposal of all infected material by throwing it overboard. Conveniences for laundry work, which was a big problem with us; electric light and fans; then above all there was no fly pest to contend with, not to mention dust and mud.

With regard to sanitation, I came to the conclusion that the whole problem is expressed in the one word—flies. Now I suppose we all realise that the fly is a (or the) most dangerous vehicle of infectious disease. But when I say that an open latrine existed in one of the busiest parts of the island, where countless flies feasted, it proves that at least we do not always carry our convictions into practice. A most capable fly expert did come to Lemnos. But he arrived too late, and his material for fly destruction still later, when cold weather had practically wiped them out.

While sanitation broke down hopelessly at Lemnos, owing I think to our inability to cope with the fly pest, preventive inoculation scored a glorious triumph. I feel satisfied that typhoid fever would have raged had it not been for inoculation. In this connexion, and indeed in every way, the Pathological Department was of the very greatest value, and I should like to pay a tribute to the services of Professor C. J. Martin, who was in charge of it. One could not be associated with him for any time without realizing that he is one of the big men of the profession. Further, to know him is to realize that the man who counts is not always the one who parades his goods most.

In the matter of food I was greatly impressed with the importance of a supply of fresh uncooked articles in the diet. Although there was a liberal supply of tinned provisions and lime juice, we saw a good many cases of scurvy and what appeared to be beri-beri. In fact I think most of us suffered more or less from a deficiency of vitamines. The lime juice supplied to the army proved to be absolutely inert, and the cases of scurvy only improved when it was found that raw potato pulp was a most effective substitute. Many Turkish prisoners were badly affected with scurvy, and a common indication of it was the presence of a hard, painful, white swelling

[1] Read at a meeting of the New South Wales Branch of the British Medical Association, on December 15, 1916.

over the upper third of the tibia. This condition was new to me, and I did not recognize it at first. We learnt through the Turkish prisoners' camp that the treatment by their army doctors (German, I believe) was the administration of salicylate of soda. So I take it that they did not recognize it either, and considered it to be of a rheumatic nature.

Another subject I feel rather keenly about is the matter of puttees. To my mind they are an abomination for regulation use, and as put on by the average individual, both unsightly and actually harmful. I believe they often cause varicose veins. On several occasions men have assured me that they acquired their varicose veins from wearing puttees, and they were generally men who were not trying to shirk in any way.

Then again, in the blizzard at Gallipoli, I think puttees probably aggravated the effects of the severe cold by getting wet and shrinking on the legs. They are troublesome to put on and to take off. They do not wear well, and do not compare with light leggings for appearance or utility. I should like to see them discarded for military purposes.

In conclusion I wish to pay a tribute to the nursing sisters. They did splendid service, and have established themselves as a necessary factor in military organization. I feel sure that no one who had experienced what the nurses meant to the sick at Lemnos could again tolerate the orderly system of nursing by orderlies.

SOME EXPERIENCES WITH THE No. 2 AUSTRALIAN STATIONARY HOSPITAL.[1]

By J. E. F. Deakin, M.B., Ch.M. (Syd.),
Honorary Assistant Surgeon, Mater Misericordiae Hospital, North Sydney.

Our unit formed in Western Australia consisted of two medical officers, one quartermaster, and 86 non-commissioned officers and men. We spent three months in camp training the men. Each had two weeks in Perth Public Hospital learning to do dressings, etc. At the same time the medical cases were nursed in camp. Lectures similar to those of the Australian Trained Nurses' Association were given in addition to first-aid lectures, stretcher drill, etc. Landing in Egypt at the beginning of January, we erected a hospital consisting of various kinds of tents and marquees, in the desert about one mile from the Pyramids, and soon had under treatment about 800 venereal cases. These were mostly gonorrhœa and soft chancres. Syphilis was comparatively rare, fortunately, as we had no "606." The men with syphilis and gonorrhœal rheumatism were sent back to Australia. All others were retained and treated. A very common lesion was a torn frenum on which a chancre developed afterwards. This was due to the prostitute douching with alum. From notes on 284 of these cases, comprising 147 chancres, 114 gonorrhœal infections, 79 buboes and 27 with torn frenums, some patients enjoying two or all of the above, we found that only 20 took no precautions against infection. All others took some precaution at the time and many on returning to camp were in addition syringed out by their medical officer, or treated according to his directions.

40 washed in soap and water.
169 washed in Condy's fluid.
11 washed in solutions of lysol, hydrogen peroxide, perchloride of mercury, or carbolic acid.
19 applied calomel ointment before connexion or immediately after washing; some both before and after.
34 were syringed out at once by themselves or chemists immediately after. Those who were syringed out on returning to camp or on the following morning, *i.e.*, several hours after intercourse, are not included in this series.
2 burst the condoms, which they were using.

Only one man stated that he used a French letter, and yet got gonorrhœa. He said that he was very drunk at the time. The conclusion we drew was that no medication such as syringing or the use of ointments, as carried out by the soldiers, was of much avail. We advised that, if continence could not be practised, the men should be provided with condoms at cost price to aid in protecting them.

The treatment varied with our ability to obtain drugs. The majority of drugs constantly ran out. Patients with gonorrhœa had urethral douching with potassium permanganate, and occasionally injections of zinc sulphate, silver nitrate or argyrol. Chancres were treated with copper sulphate, tincture of iodine, iodoform, zinc oxide, or castor oil and Friar's balsam. Some men with very swollen sores would be seen soaking their penis in a jam-tin containing hot biniodide of mercury solution. All patients with long foreskins and chancres beneath them were circumcized. A common condition was a small perforating ulcer through the frenum. This condition persisted for weeks unless the frenum was cut through.

At first the hospital was surrounded by sentries, but as too many of the patients escaped into town, and there imbibed alcohol, it was necessary to erect a barbed wire fence around it, and to put the sentries outside. Even this failed to keep all in. The difficulty of nursing was increased by the fact that we had no beds, mattresses, nor palliasses, and in some tents no covering for the sandy floor. In calm weather it was not bad, but when the "Ham sheen" blew you could hardly breathe on account of the dust; food, wounds, everything were full of it. In spite of this the cases cleared up more quickly than in private practice, mainly I think because the patients had no inducement to walk outside their tents.

The test we applied as to cure of gonorrhœa was to send the man trench-digging, and to examine him soon afterwards, and again on the following day. If no pus could be milked from the urethra or prostate the patient was considered to be cured. The method was a crude one, but efficient, as we had very few recurrences.

Finally we handed over the hospital and patients to a Royal Army Medical Corps ambulance, and in April went to Lemnos, and thence to Cape Helles to view the landing there. The ship we were on board had no wireless apparatus, and took four days

[1] Read at a meeting of the New South Wales Branch of the British Medical Association, on December 15, 1916.

to go from Alexandria to Lemnos, and our tardy arrival caused considerable anxiety, as in addition to a Royal Army Medical Corps stationary hospital, we had some millions of rounds of small arm ammunition. We did not fly the Red Cross.

Arriving at Cape Helles on April 26, we had a fine view of the operations on both sides of the Straits entrance, where the French and British landed. Here we remained lost for four days. Finally being discovered we were sent to Anzac. The unit divided into two halves, and the equipment likewise. Each half was placed on a ship; ours was a Peninsula and Oriental liner.

Picture to yourselves the hold of a ship, the portholes open, a few electric fans revolving, scattered electric lights overhead, the mess tables and benches previously used by the troops still in position; the floors, benches and tables covered with wounded, some on blankets, others on the bare boards, a few specially bad ones on mattresses, an occasional delirious soldier strapped to a stretcher, and all the time a stream of wounded coming down the steps or being lowered down the gangway on slings. Such were the conditions under which we worked after the landing at Anzac.

In one corner a mess table was set apart for operations. At one end of it a "primus" stove, very much the worse for wear, and needing the constant attention of the pricker to keep it burning, sterilized our instruments and cotton wool used for swabs. At the head of the same table a wounded soldier, in clothes very dirty and blood stained (the operation field alone was uncovered and surrounded by wet boiled towels), was anæsthetized by a man who in civil life was a commercial traveller, his whole experience in anæsthetics consisting in having once been anæsthetized himself. Standing between bench and table the gowned and gloved surgeon was faced by his assistant, who until the war was a school boy about to commence his medical studies. Chloroform was the only anæsthetic used, and there were no deaths under anæsthetics, but the strain of working under such conditions was considerable. Within half an hour of our arrival the wounded streamed on board. Most of them had been wounded a few days before, and had nothing but their field dressings on. All were hungry and thirsty, and some very weary, and others still excited from the battle. We ended with about 700 cases.

Lieutenant-Colonel White selected the cases to send along to us for operation. Captain Stacy had one operating table, a fleet surgeon and his assistant from the *Swiftsure* another for a day, and I had the third. Major Barber saw to the distribution of the men, their feeding, etc., and between times operated.

The conditions on other ships were in many cases much more difficult than in ours. Two doctors and 12 orderlies had anything up to 800 wounded to attend to, and probably only the contents of a surgical pannier to do it with.

Unlike my anticipations, the wounded were strangely quiet, the only moans being from unconscious men. The manner in which the men, both Australian and British, bore pain was marvellous. One man who had his eyes splashed with pieces of a bomb and dirt, resulting in the destruction of one eye and considerable damage to the other, had been wounded three days before, and although blind had stuck to the trench, digging shelter holes for his mates for two days before he would leave them. He had worked until his horny hands were a mass of raw blisters. He apologized for being a coward when he groaned as I examined his eyes!

The hardest part of our task after dressing the wounds was to distribute food to the wounded, and in this we were ably assisted by the ship's crew, especially the cooks. Our orderlies, including storemen, cooks, and clerks, who had to take particulars of every man on board, only numbered 40, but they stood to their work splendidly.

Our surgery was on the most conservative lines. Of abdominal cases I remember three. One man had had his belly torn from sternum to pubes by a bullet at close range. He had been stitched with cotton to keep his intestines in, and had a note pinned to him stating that asepsis had been impossible. The intestines were apparently uninjured. We opened the abdomen, inserted a drain into the pelvis, swabbed the wound with biniodide of mercury solution, and restitched it with silk-worm gut. He died three days later. One man had multiple wounds of the small intestine, caused by a rifle bullet. I found six holes, and closed them; the drains were left in. He died. A third man had received shrapnel through the caecum and out through the gluteal region. We closed the opening in the caecum, drained the abdomen and the gluteal wound. The man was still living at Alexandria, and looked as if he would recover.

Most of the work consisted in stopping hæmorrhage from limbs which had tourniquets on, or from wounds which had been plugged with gauze. Very few amputations were performed unless the limbs were hopelessly shattered. Cases which were apparently hopeless were not touched, and undoubtedly many whose lives would have been saved in civil practice had to perish because we did not have the time to attend to them.

About a week after embarking we arrived at Alexandria, and discharged all our patients. The embarkation officer informed us that ours was the first ship that had arrived with a correct nominal roll.

We then returned to Anzac, taking back with us artillery and their horses. I may say that at the time it was customary for each unit to take its horses to Anzac, and being unable to land them to return them to Egypt. The usual procedure was therefore for a ship to unload one lot of horses, and to take on board another batch for a sea trip. On arrival at Anzac we were transferred. This ship was filthy, and alive with cockroaches, but we ran it as a hospital ship. Whilst we lay off the beach the first submarine scare occurred. Every ship, battleship, cruiser, transport and collier fled at full speed to Lemnos, Imbros, Tenedos, or other harbour, leaving a hospital ship and our Chinese vessel alone in our glory. It was a grand sight. Torpedo destroyers were of course moving around always. At that time

our ship had no Red Cross. One night we would be brilliantly lighted to show we were a hospital, and the next all lights would be out, as we had an idea that not being a registered nor painted hospital ship, we might be torpedoed. After the hospital ship had been filled with bad cases she departed, and we alone remained. On shore we could see the shelling, etc., and with glasses could at times pick out moving troops, whilst the sound of rifle and machine gun fire sounded very close. After a week of this we were ordered to Lemnos, and there Captain Stacy and I, with 12 orderlies, were transferred to the fleet-sweeper *Clacton*, and inaugurated the hospital ferry service from Anzac to Lemnos. Our usual run was to leave Lemnos at dusk, carrying up to 1,000 soldiers, stores, shell, ammunition, etc. Arrive at Anzac about 1 a.m., unload everything into barges, to be towed ashore by the naval launches from the cruisers, etc. The launches were manned by blue-jackets, under the command of "middies," mostly boys about 13, who earned our unbounded admiration for their splendid conduct and bravery in taking their tows ashore day after day under fire. The numerous holes and dents in their boats from shell-fire showed clearly the risk they ran. On the *Clacton* most of their interest centred in the mess table and the gramophone. At daylight we cleaned our boat, spread our palliasses and blankets in the holds, on hatches and on deck to receive the wounded. These would come off in barges, the bad cases on stretchers. You can gain some idea of how they were tossed if you picture loading a ship lying off Manly beach. We were lucky never to have lost a man overboard in loading. The wounded had to be put in the barges in the intervals during which the beach was free from shelling. Many a time I have seen them start to load a boat, get half on board, and then have to flee to shelter, leaving those already on board to take their chance until the shelling eased off. At this work Major Richards, of the Clearing Hospital, fearlessly and continually exposed himself, until he contracted pneumonia, and died. The first batch of wounded came off at 10 o'clock, and the last about 2 or 3 a.m. We then departed to Lemnos, travelling at full speed, lights out, and a zig-zag course. Two other boats on the same work were sunk through collisions, fortunately with the loss of only one life. Arriving at Lemnos after the boom was opened, we would on each occasion be received by the *Aragon*, the headquarters' ship, as if we were strangers, were asked our business, and after various contradictory orders, were permitted to unload our wounded. The best example of this was the occasion on which we transferred our worst cases to a punt, to be towed to a ship whilst we followed to the other side of the same ship, to transfer directly to it the less serious cases.

We continued at this work during May and June, and availed ourselves of various opportunities to go ashore and over the trenches at Anzac. We never sighted a submarine. Bullets frequently landed on the boat, and we were shelled at different times. One shell burst on deck, blowing a hole in it, but fortunately we never lost anyone. We never flew the Red Cross, and carried two 12-pounders. The *Clacton* has since been torpedoed.

During this time there was no fresh food at Anzac, not even bread, with the exception of what we took to our friends. On each trip I took eggs, bread, chocolate, rice, oranges, curry, pickles, etc., in fact anything I could get from the limited resources of Lemnos. All these had to be personally conducted to the shore, otherwise none would arrive at their destination. Usually two orderlies accompanied me, being very glad of the opportunity of seeing things, and they would return with the first batch of wounded to the ship.

At last we were demanded back by our Colonel, and so we returned to the Stationary Hospital, which was now established at Mudros. The hospital was pitched on a triangular patch of ground, with a rough road on each side of it. The position had been fouled before our arrival, and flies and dust abounded. The weather was tropical, and our patients had sufficient water for drinking purposes and no more, as it was brought from Malta or Egypt, pumped into barges, and thence to water-carts drawn by mules to our hospital, to be stored in wine casks bought from the French. The limited island supply was used by the French and the troops camped about. Our patients varied from 500 to 800, and included those suffering from typhoid, paratyphoid, dysentery, jaundice, and wounded men, and still a few with venereal disease. At this stage most drugs would be unobtainable for days at a time, even magnesium sulphate and castor oil being missing at times. Our dysentery cases improved with *vinum ipecacuanhae* or *pulvis ipecacuanhae compositus*, and bowel "wash-outs" with sea-water, emetine being very rarely obtainable in July, 1915. We had many patients whose temperature was raised for five to nine days and then recovered. Salicylates or quinine made the patients feel better without influencing the course of the disease. It was sometimes referred to as "sand-fly" or "seven-day fever," and officially as "P.O.U.O." (pyrexia of uncertain origin).

At this period the need of a dental corps was most urgent. Thousands of men came from the front owing to having no teeth, or bad teeth, and digestive troubles arising from these causes. The diet at the front consisted of bully beef, biscuit, cheese, jam and fat bacon. At first instructions were issued to send these men to Egypt. Then the exodus began. Soon we were instructed that all teeth cases were to be retained for fatigue and other duty on "lines of communication." A few dentists with the No. 1 Stationary Hospital which had been at Lemnos since April, did splendid work until one after another they became ill with typhoid or paratyphoid. We continued at this work until the Suvla Bay landing in August. Meanwhile Major Zwar had gone away with appendicitis, and Captain Sawers had developed paratyphoid. Many of our men had been invalided from various causes; no reinforcements had so far reached us, all being held up in Egypt. The whole of the work, therefore, fell on less than 70 men, these being assisted by a few men from the "toothless brigade." All the nursing had been performed by our male orderlies, who by this time had

become expert nurses, and could take temperatures and pulses, give hypodermic injections, enemata and "bowel wash-outs" as well as any nurse.

In August we handed over our tents, patients and general equipment to the No. 1 Stationary Hospital, and went across the harbour to erect a hospital on new ground. This was a real picnic. On our arrival the promised marquees and tents were not there, and we had to hunt up everything, including tents, cooking utensils, etc., from the Army Service Corps, beg the loan of waggons (motor or horse), ambulances, etc., from anyone good enough to lend to us, cart the material to our site in the centre of a field of growing sesame, and there erect our hospital with its necessary latrines, cook-houses, etc. Within two days we had some patients in, and in two weeks nearly 1,000 men, chiefly wounded. We were assisted by some 20 Royal Army Medical Corps nurses and doctors; then by 12 Canadians, and later by 12 nurses from the No. 3 Australian General Hospital. These nurses returned every evening to their own hospital, so all the night-nursing was done by our men. The work for a time was very hard, the weather scorching, and flies in millions. We were operating in a hospital marquee, the entrance of which was covered by mosquito netting. Our water was kept boiling by two slightly wounded men, and there was a stream of men for operations. We were working at our limit, and had to be satisfied to dress each case once a day. Time will not permit me to tell in detail how splendidly the twelve nurses loaned from the No. 3 General Hospital worked, nor of the work of the twenty nurses finally attached to us. The conditions under which we had to work resulted in all our officers going away ill. There was Major Barber, who was infected from a wound, and then got paratyphoid; Captain Haynes went down with dysentery, Colonel White was ill with jaundice, Captain Stacy nearly died from bacillary dysentery. Major Barber and Captain Sawers returned to our unit before I left Lemnos on the day after the evacuation of Anzac.

All the badly wounded men were given antitetanic serum, and no case of tetanus occurred among them. We did not give the slightly wounded men antitoxin, as our supply was short. Three of these men developed tetanus and one died. Later on in December one man who had been frost-bitten developed tetanus and died. We have many cases of gas gangrene. Not one case recovered when the thigh was affected, but we saved several cases of gas gangrene of the arm by amputation and hypochlorous acid baths, etc. The difficulty of feeding our patients was considerable. No eggs were available for a week at a time, and practically no fresh food. We ourselves had no vegetables except onions and dried haricot beans for some weeks. The diet consisted of tinned milk, rabbit, chicken, maizena, "Glaxo," rice, chilled beef and tinned, dried vegetables.

From personal observation I would recommend:—

1. The compulsory formation of medical units in times of peace. The members of these units must be trained together, the orderlies being instructed in nursing duties and actually performing these duties in hospital. If the authorities cannot spare physically fit cadets, those defective in sight and others with slight physical defects, such as varicose veins, varicocele, flat foot, etc., might be utilized.

2. The orderlies sent on as reinforcements should be trained before leaving Australia. In most hospitals in Australia, where male orderlies are being trained, the whole of the nursing is performed by the nurses, and the men act as general duty men. That may be all right as long as they go to another hospital where there are nurses, but if they are sent on to a clearing or stationary hospital, to an advanced dressing station, or to a field ambulance, they will have to do nursing and dressings, and to give hypodermic injections, etc., without any previous training. This is a most serious matter, and we had the pleasure in September, 1915, of starting to train our reinforcements in nursing, some of whom had been in the Australian Imperial Force for nine months.

Reports of Cases.

BILHARZIOSIS.

By **P. E. Walton Smith, M.B. (Syd.), M.R.C.P. (Lond.),**
Pathologist, No. 4 Australian General Hospital.

Three returned soldiers suffering from infection with *Schistosomum haematobium* were admitted to the No. 4 Australian General Hospital during November last. They were under the care of Lieutenant-Colonel Jarvie Hood, to whom I am indebted for permission to record these notes.

All three became infected through swimming in the fresh water canal at Tel-el-Kebir, in Egypt. One patient stated that he, with a number of other men, bathed in the canal in July. They all noticed that the skin itched and tingled for about a quarter of an hour after leaving the water. Several of the other bathers developed bilharziosis. In each case urticaria was a prominent feature; all showed a high degree of eosinophilia; in two of the patients bilharzia ova were demonstrated in the peripheral blood.

Case I.—A.E., æt. 22 years, arrived in Egypt in April, 1916. In June he was in No. 2 Australian General Hospital for three weeks with urticaria and vomiting, and was discharged to duty at the end of that time. On August 25, 1915, he was admitted to No. 3 Australian General Hospital with urticaria, anorexia, nausea and pyrexia. He was very depressed, but had no diarrhœa. A blood culture was prepared, but no organisms grew. His blood was found to contain 18,000 leucocytes per cubic millimetre, and there was marked eosinophilia. An examination of his blood revealed numerous bilharzia ova. The patient, who saw the film, stated that there were as many as 40 or 50 in one field.

In September, 1916, the spleen was enlarged. The patient complained of occasional abdominal pain, and was constipated, but passed mucus and blood in the stools.

He was admitted to the Randwick Hospital on November 11. Bilharzia ova were found in the blood on the 15th. Since that date the blood has been examined each day, but they were not found again. They were seen once in the urine, but not in the fæces. The total number of leucocytes was normal, but an increase in the number of eosinophile cells was determined. The differential count was as follows: Neutrophile cells, 43%; lymphocytes, 41%; eosinophile cells, 13%; large mononuclear leucocytes, 2%; and mast cells, 1%. The patient was apparently in good health, except for painful micturition and slight hæmaturia, which was noted at the end of the act.

Case II.—C.S., æt. 23 years, was in Egypt on March 12, 1916. When admitted to hospital on August 14, 1916, he complained of pain in the upper part of the abdomen and back, loss of appetite, headache, shivering and sweating.

Bronchitis was discovered. On the tenth day he developed urticaria on both lower limbs. This attack lasted for four days. He had recurrent attacks until the end of September. Lateral spined ova were found in the motions, but none in the blood. They measured 104μ in length and 61.6μ in breadth.

The liver and spleen were enlarged. The leucocytes numbered 18,000, and of them 60% were eosinophile cells. That is, there were 10,800 instead of the normal 300 per c.mm.

The patient still complains of pain over the descending colon and of occasional attacks of diarrhœa. The motion contains blood and mucus. Frequent examination of the fæces and urine has been carried out, but no ova have been found again. The leucocyte count is 13,200. There are 46.5% eosinophile cells and 2% mast cells.

Case III.—A.B., æt. 19 years, was admitted into hospital in Egypt on August 28, 1916, complaining of "Being sick on the stomach" (? pain), of a rash on the body, and of swelling of the face, neck and limbs. The illness had begun with pain in the abdomen coming on after meals and nausea. Three or four days later a rash, accompanied by itching, appeared. On the following day he could not raise his eyelids properly, and other parts of his body became very much swollen. The patient was very drowsy. The temperature was 99.6° F. He improved under hospital treatment, but on September 6, 1916, the symptoms recurred. There were vomiting, diarrhœa, œdema and urticaria. The temperature rose to 100° F. The leucocyte count reached 20,000. Marked eosinophilia was present.

Bilharzia ova were found in the blood and fæces. He had frequent attacks of "giant" urticaria. These attacks did not last as long as the first one. The last attack occurred toward the end of October.

Since he returned to Sydney he has noticed some puffiness of one eye. He still suffers from diarrhœa, with painful defæcation and urgency. The leucocyte count is now 7,200. The differential count reveals 48% of eosinophile cells and 2% of mast cells. No ova have been found by us in the blood, urine or fæces.

In regard to the mode of infection, it is now generally accepted that the bilharzia parasite gains an entrance to the body through the skin. The idea that it is conveyed by means of drinking-water seems to be untenable. The *miracidium* is killed by exposure for one minute to 1 in 1,000 hydrochloric acid. The acid present in the stomach is in greater concentration than this. Other methods of entrance have been suggested, such as by the rectum or by the urethra. The evidence, however, in support of these suggestions is lacking.

Patients may pass ova for years, and yet suffer little from the condition, if they are removed from the source of infection. Sandwith, writing in Clifford Allbutt's "System of Medicine," expresses the opinion "that in most cases of ordinary bilharzia infection the symptoms pass off within four years after leaving the country in which the disease was contracted."

In regard to treatment, it appears that, so far, nothing has been discovered which will kill the parasites in man.

Reviews.

ARTIFICIAL LIMBS.

The utter disregard on the part of the Department of Defence of the justifiable claims of soldiers wounded and in need of specialized orthopædic treatment have resulted in a part, an important part, but nevertheless only a part, of the work being done through a voluntary agency. In his capacity as a member of this agency—the Red Cross Society—Sir Thomas Anderson Stuart has delivered a lecture on artificial limbs. Those who listened to this lecture were so impressed by it that the authority of the late Minister of Health of New South Wales was obtained for its publication in pamphlet form by the Government Printer.[1] In this, we venture to think the Professor has made a mistake. The care of returned soldiers is not a State matter, save in so far as the work is undertaken and completed by private organizations or individuals. Since the Federal authority is not disposed to face the problem as it has been faced in the Old Country, in France and in the enemy countries, the lecture should have been produced untrammelled by official benedictions or departmental sanction. The story of the maimed soldier returning to Australia is a sad one, and will remain a defect in our system until a proper orthopædic system has been organized, with the most highly trained orthopædic surgeons in the Commonwealth at its head. Sir Thomas Anderson Stuart's lecture was a lecture to a meeting of the New South Wales Branch of the Red Cross Society. It is also a curtain lecture to the military authorities. It is excellent in its teaching. The lecturer tells of the rapid development of the science and art of making and applying artificial limbs. He teaches those who do not know what is being done in England, Scotland and Ireland, in France, and in Austria, and what is not being done in Australia. He traces the origin of these artificial substitutes for lost arms and legs, and relates the uses of the various types and forms. It is regrettable that the best limbs are American products, and not the devices of British ingenuity. But as these are the best without doubt, we must accept them and give our brave maimed men the advantages of them. He emphasizes the importance to the proper treatment of the stump, and of the proper training of the divided muscles in the new function of wielding a "dead" limb. In another column the remarks on the arrangements obtaining in France in regard to the provision of artificial limbs by Dr. Lucy Gullett scarcely find an echo in Sir Thomas's descriptive lecture. According to Dr. Gullett, the French Government, by supplying a bucket leg, provide the men with the necessity; while, if they desire a more complicated limb, with joints, etc., the men provide the luxury. Is it really a luxury for a man to receive a substitute for a leg lost in the service of his country to enable him to climb a ladder, to carry a trunk or to ride a bicycle? Surely the best are but poor exchanges for that which has been lost. Notwithstanding the fact that paper is a precious commodity, we trust that Mr. Gullick will be called upon to distribute a ton of Sir Thomas Anderson Stuart's illuminating lecture broadcast throughout the Commonwealth.

[1] Artificial Limbs: A Lecture delivered on September 27, 1916, before the Members of the Red Cross Society, New South Wales Branch, by Sir Thomas Anderson Stuart, M.D., LL.D., D.Sc., Dean of the Faculty of Medicine, University of Sydney, a Member of the Executive of the Branch; 1917. Sydney: William Applegate Gullick, Government Printer; Crown 8vo., pp. 28, illustrated.

University Intelligence.

WESTERN AUSTRALIA.

It is announced in the *Government Gazette* of January 12, 1917, that two members of the Senate of the University of Western Australia will be elected by convocation on March 13, 1917. Nominations under the hands of two qualified voters will be received not less than 28 days nor more than 42 days before the date of election.

A meeting of the Senate of the University of Western Australia was held in December of last year. It was agreed that the leave of absence granted to Professor Whitfeld be extended, to enable him to carry out war work in which he was engaged in England at present. This was in response to a letter from the Director-General of Munitions Supply.

It was decided that an application be made to the Commissioners of the 1851 Exhibitions in pure and applied science in England, with a view to having one of these exhibitions allotted to the University of Western Australia. Professor Wilmore was empowered to interview the Commissioners on the subject.

It was decided to send a congratulatory letter to Lieutenant Marcel Aurousseau, the Assistant Lecturer in Geology, on the occasion of his having received the Military Cross. The Pro-Chancellor referred in laudatory terms to the valuable services rendered by Captain E. A. Weston, Lecturer in Veterinary Science, while in Egypt.

The Medical Journal of Australia.

SATURDAY, JANUARY 27, 1917.

A Matter of Honour.

Of the many advantages of membership of the British Medical Association none is greater than that which provides for the welfare of practitioners whose interests cannot be safeguared by an action of their own. Medical ethics have gradually evolved under its protection, and as each unwritten law is accepted by the great body of the medical profession, it becomes a matter of honour that each member shall refrain from doing anything which would gain for him an unfair advantage over his fellow practitioner. The rules guiding the conduct of practitioners have been framed after careful and due consideration, in which every member has had an opportunity of taking part. Those who dissent from the ruling on any point of ethics have to accept the situation if they are in the minority, but it has been found that there are few, if any, who wish to defy on principle these rules framed for the benefit of the profession. Complaints have been made both in Australia and in Great Britain that the measures which have been adopted in order that those patriotic members who have undertaken military service abroad may not be called upon to suffer unduly have not been respected by some members of the profession, and that in certain cases the patients of absent practitioners have been enticed away by their colleagues at home. We cannot believe that this has been done deliberately. Nevertheless, thoughtlessness, weakness or want of method may have just as serious consequences as wantonness, and it may be advisable to call the attention of practitioners still in the Commonwealth to this most important matter, and to ask them to consider their conduct more carefully than heretofore.

This subject has occupied the attention of the Central Medical War Committee of the British Medical Association, and we learn from the Supplement of the *British Medical Journal* of November 18, 1916, that a letter has been addressed to every medical practitioner throughout the British Isles, inviting attention to a plan of procedure calculated to minimize the loss which must in any case fall on those who leave their practices for any considerable period. These suggestions could be applied to the conditions of practice in Australia, and can therefore be recommended for adoption by every practitioner who holds it to be a matter of personal honour that the terms of the resolutions carried in each State at the beginning of the war shall be acted on. We would remind members that want of prosperity is no valid excuse for breaking faith with a man on active service. These men have given up so much, have not hesitated to risk their health and lives, and have made great financial sacrifices for the Empire which shields us all. In some cases the pecuniary loss involved by joining the Australian Expeditionary Force has amounted to actual ruin. A moment's thought will cause every member at home to scorn to profit out of his brave colleague's loss. In England members of the medical profession are asked to make proper enquiries of every new patient, in order that when the patient was previously under the care of a doctor on active service he may be referred to the locum tenens, or to the colleague who has undertaken to look after his practice during his absence, or when no such arrangement has been effected to accept the patient solely and only on the understanding that the patient shall return to the absentee on his return to practice. It is suggested that all fees charged should correspond to those usually charged by the absent doctor, and that in every case the fees collected from patients of an absent practitioner should be divided. Emphasis is laid on the duty of practitioners in connexion with the practices of deceased colleagues. It is possible that the various Branches of the British Medical Association in Australia may discuss this matter and draw up general regulations for the guidance of their members. In any case, members are recommended to read the paragraph in the Supplement of the *British Medical Journal* referred to. To mould one's conduct on principles such as these has become a matter of honour.

BILHARZIOSIS.

In the present issue we publish a short note by Dr. B. Poulton on some observations which he has made in returned soldiers infected with *Bilharzia haematobia*, and a paper by Dr. Walton Smith on the same subject. The discovery of infections by these trematode worms in returned men both in South Australia and in New South Wales, together with the record that these patients were but a few of those who in defiance of orders bathed in Egypt in fresh-water canals, leaves no doubt that a systematic search would disclose numerous other cases of bilharziosis within the Commonwealth. The memorandum issued by the Director-General of Medical Services attached to the Mediterranean Expeditionary Force, which Dr. Poulton quotes, contains the best description yet published of the life history of the worm. From this account we can learn a great deal of the pathology of bilharziosis. Hitherto the mode of entrance of the immature worm into the human host was in considerable doubt. In order to recognize the extent of the danger of a wide spread of this affection in the Commonwealth, it is necessary to sum up the facts. Bilharziosis is acquired by the passage of the *cercaria* of the trematode through the skin or mucous membrane of a man's body. The infection, once produced, is conveyed from man to man through an intermediary host, a mollusc. Dr. Poulton informs us that in South Australia there are several species of Bullinus closely allied to *Bullinus contortus* which is the intermediary host in the fresh water canals of Egypt, and further, that there are probably two species of Plenorbis. In other States the same applies, and it is therefore practically possible for the eggs passed in the urine or fæces of human patients in Australia to infect fresh water, and for the larvæ to hatch out of these eggs. We now know that the life cycle continues if a suitable fresh-water mollusc takes up the larvæ or *miracidia* within 24 hours of the hatching. Dr. Poulton has suggested to us, with every semblance of justification, that in the cities the chances of infection of fresh water and of a consequent passing on of the worm from man to man is so remote that it need scarcely be regarded as a practical process. But in the country districts the problem is quite different. Given a number of men harbouring the *Bilharzia haematobia*, and capable of discharging eggs into fresh water channels, and granting that suitable molluscs exist in these channels, it is difficult to see what is to prevent the spread of the affection. Since these men were warned not to bathe in the Egyptian canals, and flouted the order, it is quite certain that general directions concerning the disinfection methods of the urine and fæces would be ignored in every case. The prevention of the spread must therefore be undertaken by the health authorities, and must be carried out under rigid regulations. In the first place, medical practitioners should be called upon to watch for instances of the infection, and to notify them without delay. The health authority should then make full investigations concerning the source of infection, and should take steps to control those persons whose urine and fæces contain bilharzia eggs, and to remove as far as may be practicable those molluscs which can be shown to act as intermediary hosts. It is of course an essential that experimental evidence should be produced to demonstrate which fresh water molluscs in Australia are capable of ingesting the *miracidia* and of acting as the home of the sporocysts and *cercariae*. This evidence can be collected without difficulty. Patience and a small amount of biological knowledge will suffice for the research. We trust that every health department will take this matter up immediately, and set into action the machinery necessary for the control of the infection.

THE BUILDING OF THE TISSUES.

We publish in the present issue of this Journal an abstract of a lecture delivered before the Chemical Society by Dr. F. Gowland Hopkins, on some aspects of the metabolism of proteins. Gowland Hopkins is widely known as a biochemist who has succeeded in applying accurate chemical methods of experimentation to the problems of the animal body. He has been for some years Director of the National Laboratory of Animal Nutrition, which has been established in England to ascertain economical methods of feeding animals. The work of this laboratory has already been of value to farmers in pointing out better means for feeding and fattening stock. The lecture deals with the problems which

have been studied in this laboratory during the last few years. The experimental work has been singularly successful in advancing our knowledge of the fate of the proteins. A foundation is being laid for the rational selection of the nitrogenous part of the diet of any animal. It had long been known that the digestion of proteins leads not only to their apparent solution but to their conversion into much more simple substances from the chemical point of view. We are now aware that the proteins are formed by the union of a great number of more or less simple chemical compounds which are called amino-acids. A typical protein contains at least eighteen of these units, which show much variation in chemical structure among themselves. By boiling proteins for many hours with mineral acids the proteins can be split or hydrolyzed into these amino-acids. Each protein is found to yield different weights of these acids. By prolonged digestion with peptic and tryptic ferments, the protein can be split into the same amino-acids either within or without the animal body. For close on twenty years it has been thought by some physiologists that the proteins are almost completely split up into simple amino-acids before their absorption from the intestines. Since 1910 evidence has been steadily accumulating which goes to show that the products of the complete digestion or hydrolysis of proteins alone enter into the blood stream.

Attempts had been made to maintain the life of animals by feeding them upon completely digested proteins, but until the last decade these experiments had not been successful. The difficulties have now been surmounted, and animals have been kept in perfect health for long periods upon diets in which the whole of the protein had been completely broken down into simple amino-acids before administration to the animal. The earlier failures were in part due to the use of faulty methods of hydrolysis, as a result of which some of the amino-acids forming part of the protein were destroyed, and in part to the absence of certain substances stimulating nutrition which are named vitamines. It has been found advantageous to employ young growing animals for these experiments, since their rate of growth can be readily compared with animals fed under natural conditions, and since they increase so rapidly in weight at some periods of growth that observations can be made in a few days on the effect of any particular diet. A young dog fed upon filtered butter fat, potato starch, sugar, inorganic salts, a minute weight of non-nitrogenous vitamine, and a mixture of amino-acids formed by the complete hydrolysis of protein, has gained 22 lbs. in weight in 100 days.

When he had found that he could maintain animals at a normal rate of growth on a mixture of all the amino-acids formed by the hydrolysis of protein, Hopkins studied the effect of removing different amino-acids from the diet. This mode of experimenting has been brilliantly successful. The difficulty in separating the individual acids from the complex mixture produced by digestion is considerable, so that advantage had been taken of such separations as have been discovered. When casein, the protein of milk and cheese, is boiled for forty hours with 25% sulphuric acid the casein is broken down into its constituent amino-acids. The prolonged heating, however, destroys tryptophane, one of the amino-acids present in small amount in casein. Tryptophane is an amino-acid containing a particular arrangement of atoms, called an indole ring. This ring is disintegrated during the energetic hydrolysis of the protein. No other amino-acid containing this ring is present in casein. When the hydrolysis of the casein is complete, the acid is removed and the solution evaporated to dryness. The substance obtained is composed of all the amino-acids present in casein except the tryptophane. The quantity of tryptophane in casein is about one and a half per cent. of the weight of casein. If this amount of tryptophane, together with suitable non-nitrogenous food-stuffs is added to the dried product of the acid hydrolysis of casein, and fed to young animals they grow rapidly. If the tryptophane is withdrawn the growth ceases, the weight of the animals declines, and after thirty or forty days death from starvation occurs despite the abundance of food. The wasting may be extreme and the weight of the animal fall to one-half the figure for the weight at the moment, when the tryptophane was withdrawn. The loss of weight ceases and growth starts again, if the tryptophane be restored after ten or twenty days' absence. The presence of the indole ring in the food thus appears to be necessary for the proper utilization of the rest of the constituents of the proteins of the tissues. The animal seems unable to synthetize or make this ring within its own body from other material.

A young Cambridge graduate devised a method of separating aspartic and glutaminic acids from the remainder of the amino-acids. These two acids together form 28% by weight of casein. When animals are fed on the amino-acids derived from casein less these two acids they grow just as well as when aspartic and glutaminic acids are present. As the proteins of the animal still yield these two substances, it seems that the animal body can manufacture these two acids from other material supplied to it.

The series of experiments conducted on these lines have shown that certain arrangements of atoms must be supplied to the animal body in the food. When the substances containing these nuclei are absent the tissues cannot make use of other food materials, however abundant these may be. An animal fed upon a diet in which the whole of the nitrogen is given as tryptophane, arginine, histidine, lysine and cystine will maintain its weight for a long period and only slowly decline. These amino-acids contain the principal groupings of a chemical nature which are not made in the animal body, or which are manufactured too slowly for the needs of the organism. It would appear from these and other experiments that some amino-acids are concerned with the manufacture of proteins and other essential constituents of cells, such as the nucleotides. Other amino-acids seem to undergo oxidation while their nitrogen

is converted to urea. Taken as a whole these experiments have added much to our understanding of the fate of the proteins of the food in the animal body.

THE USE OF THE POLARIZING MICROSCOPE IN PATHOLOGY.

The relationship of pulmonary silicosis and tubercular infections has attracted the attention of pathologists for a considerable time, and numerous important observations have been made, on which a better understanding of the part played by the deposition of silica in the lung in determining a tubercular process may be based. From the crude knowledge of the lethal effect of glass dust to the elaborate differentiation between the forms of silicates found in human lungs is a considerable step. The facts concerning this process have been collected laboriously and slowly, and each one has been subjected to a searching criticism before it has been accepted and the next one sought. In this study the workers at the South African Institute for Medical Research have taken a conspicuous part. Drs. W. Watkins-Pitchford and James Moir have now taken the matter an important stage further. The results of their investigation of the nature of the doubly-refracting particles seen in microscopical sections of silicotic lungs[1] have now been published, and claim the attention of all interested in the pathology of tuberculosis. The authors have not set out to prove any particular theory nor to revolutionize our knowledge by a startling announcement. They have completed some very careful, ingenious and clever research work, and deserve an appreciative recognition for their achievements. They have shown that polarizing mineral particles seen in sections of lungs have in nearly every instance an acicular appearance. They are either tiny quartz scales or crystalline fragments and crystals of the accessory minerals which accompany quartz. When the quartz particles do not polarize appreciably, they are either less than 3 μ in diameter or are flattened and are lying horizontally. Since their refractive index is nearly the same as that of Canada balsam, they cannot be demonstrated in mounted lung sections. The authors have been able to demonstrate these so-called occult quartz particles, and have shown that they constitute over 99% of the total number of particles. In order to examine the particles and to identify their nature they were compelled to employ new methods. These methods depend on a proper distinction between birefringence, pseudo-birefringence and refractive indices. Much information has been gathered from an examination of the dust collected after pulverization of Rand ore or "banket." The appearances of the particles included were noted both when ordinary and when polarized light was employed, and a minute study of the effect of thickness and other physical characters on colour, apparently movement on alteration of focus and form was carried out before the particles in the lung sections could be identified. The crystallography of sericite, rutile, zircon, tourmaline and chlorite had to be mastered in order that the accessory mineral substances could be recognized. Complete ashing of the lung was discarded, firstly because the fusible salts proper to the lung tissue cause the whole residue to cake into a vitreous mass, from which the extraneous minerals could not be isolated in their original form, and secondly because it was deemed necessary to study the situations in the lung where the various forms of particles were deposited. The relative positions of the particles were determined by making sections of lung and marking a certain field of which an accurate drawing was prepared. The lung tissue and other readily destructible matter was removed by hydrochloric acid diluted with ten parts of water. Other methods were also employed, which gave eminently satisfactory results. Utilizing these means, they found that silicotic lungs contained particles which were identical, physically, chemically and in their relative proportions, to the particles of the finer portions of the Rand mine dust. They were unable to detect any indications of a physiological selection of the particles, although the deposition of the smallest particles was somewhat different from those of the larger ones. They also found that the lungs of adults, who had never worked in mines, but who had lived apparently healthy lives, contained quartz and birefringent minerals. Without entering upon an investigation into the significance of silicosis of lungs of the non-mining community, they record the remarkable fact, and suggest that the term silicosis, as it is usually applied, is not definite enough, and should be dropped in favour of hypersilicosis.

[1] On the Nature of the Doubly-Refracting Particles Seen in Microscopic Sections of Silicotic Lungs and An Improved Method for Disclosing Siliceous Particles in Such Sections, by W. Watkins-Pitchford and James Moir, Published by the South African Institute for Medical Research, September 14, 1916.

FOR THE CHILDREN IN BELGIUM.

Our attention has been attracted of late by the necessity of taking advantage of physiological knowledge in the reconstruction of diets where foods are becoming scarce and extremely expensive. The shortage is felt in Great Britain. It is not yet felt in Australia. If it were, perhaps the recruiting campaign would make more headway and fewer opponents to universal military service would make themselves heard. The question of an ordered diet has a great scientific importance to the medical profession. The provision of a diet where food is practically wanting has a sentimental interest, and we trust that the medical profession within the Commonwealth has sufficient sentiment to be moved by the story which Dr. William Palmer Lucas, of California, has to tell of the children of Belgium. The Honorary Secretary of the National Committee for Relief in Belgium, Mr. W. A. M. Goode, has issued a pamphlet in which the conditions of these oppressed little ones is vividly described. He starts his account with the eloquent phrase: *Mais c'est l'enfance surtout qui souffre!* Granting that it is the duty of Germany to feed Belgian children, he appeals to the British to accept the task of keeping them alive, because it is obvious that Germany will not perform this duty in the future, as she has not done so in the past. Dr. Lucas has determined that

in 65% of the population the effect of short rations has become apparent during the two years of captivity. Tuberculosis has increased in a remarkable manner, and the milk supply for the children and for the sick has become insufficient to cover their needs. Thousands of debilitated, adolescent children need a supplemented diet to raise their resistance against the inroads of a tubercular infection. While Dr. Lucas limits himself to a record of fact, Mr. Goode infuses a human touch into his appeal. The provision of soup and lunches through the generosity of the patrons of the National Committee has already saved vast numbers of these poor little ones. Since there are over 2,575,000 children under 17 years of age in Belgium to-day, the task is an immense one, and the need for support is urgent. We are assured that steps have been taken to prevent any leakage of the food sent to the Belgians, and that the Germans do not seize and cannot take any parcels directed by the Committee to the destitute of Belgium. Help should be extended from all parts of the Empire. We therefore ask the members to send a contribution to the Honorary Secretary, A. Shirley Benn, Esq., M.P., Trafalgar Buildings, Trafalgar Square, London, W.

THE EVER OPEN DOOR.

In the east-end of London there is a large, unpretentious building, sombre, neat and not too quiet. Hundreds of boys and girls are congregated in this building, and in the many dependent institutions infants, children, young men and women are housed, educated, cared for and trained for utility in life. It is claimed for Dr. Barnardo's Homes that they contain the largest family in the world. They were founded by a medical man. The door is ever open to any destitute, forsaken or lonely soul, whose future is grey in the world, without a helping hand, without a loving care, and without a guiding friend. It is impossible to describe the magnitude of this wonderful organization, or to give a conception in written words of the unostentatious good that is wrought by those responsible for the management. It is necessary to spend a few days in these homes to grasp the real significance of the work for the nation. Since their inception, the Homes have received 83,000 destitute children. They were recruited from the most unpromising quarters, and comprised the least hopeful material from which to mould useful citizens. And yet 8,000 have served the country in the Army, Navy and mercantile marine, and many have earned distinctions for courage, uprightness, and utility, and indeed for all that stands for honour. We have been asked to appeal for this deserving charity, which is entirely devoid of all red tape. No destitute child has ever been refused admission; no one is kept waiting. The Honorary Director points out that no gift is too small; none is too large. Five shillings supports a child for one week; £1 10s. supports 40 boys in "Natal" House for a day; £30 maintains a bed in the Australasian Hospital for one year. Send something to William Baker, Esq., M.A., LL.B., Honorary Director, Dr. Barnado's Homes, 18 to 26 Stepney Causeway, London, E.

Public Health.

THE HEALTH OF NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending January 13, 1917:—

	Metropolitan Combined District. Cs.	Dths.	Hunter River Combined District. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Enteric Fever	21	0	5	0	23	2	49	2
Scarlatina	55	0	3	0	10	0	68	0
Diphtheria	92	3	9	0	41	2	142	5
C'bro-Sp'l Menin.	2	1	0	0	3	2	5	3
*Pul. Tuberculosis	12	3	3	0	0	0	15	3

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

THE HEALTH OF VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, for the week ending January 14, 1917:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Diphtheria	42	1	25	4	67	5
Scarlatina	7	0	5	0	12	0
Enteric Fever	2	0	13	0	15	0
Pulmonary Tuberculosis	14	3	10	7	24	10
C'bro-Spinal Meningitis	2	—	1	—	3	—

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending January 13, 1917:—

Disease.	No. of Cases.
Diphtheria	26
Enteric Fever	14
Pulmonary Tuberculosis	13
Cerebro-spinal Meningitis	1
Scarlatina	11
Erysipelas	3
Malaria	1

THE HEALTH OF SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, for the fortnight ending January 13, 1917:—

Disease.	Adelaide. Cs.	Dths.	Rest of State. Cs.	Dths.	Totals. Cs.	Dths.
Morbilli	9	0	55	0	64	0
Pertussis	7	0	72	1	79	1
Diphtheria	4	2	35	2	39	4
Pulmonary Tuberculosis	3	4	20	9	23	13
Enteric Fever	8	2	25	1	33	3
C'bro-Spinal Meningitis	0	1	6	2	6	3
Scarlatina	0	0	2	0	2	0
Erysipelas	0	0	3	0	3	0
Puerperal Fever	0	0	2	0	2	0

THE HEALTH OF WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health during the week ending December 23, 1916:—

Disease.	Metropolitan. Cases.	Rest of State. Cases.	Totals. Cases.
Enteric Fever	4	5	9
Diphtheria	9	7	16
Pulmonary Tuberculosis	4	3	7
Cerebro-Spinal Meningitis	4	0	4

Abstracts from Current Medical Literature.

DERMATOLOGY.

(25) Leucoderma Acquisitum Centrifugum.

Richard Sutton gives a clinical and histological description of two cases of vitiligo presenting unusual features (*Journ. Cutan. Dis.*, November, 1916). Young females were affected, and the lesions consisted of one or more round or oval whitish plaques. Each contained in its centre a small rounded, slightly elevated, brownish maculopapule, not unlike a small pigmentary nævus. There was no increase of pigmentation around the borders. In one of the patients the earliest patch observed, three years previously, had now regained its normal colour almost completely. In the case exhibiting the most marked symptoms, the Wassermann and luetin reactions, as well as the tuberculin test were negative. Cases of vitiligo have been reported following local injuries, and developing in the neighbourhood of a pre-existing pigmented nævus, but in neither of these cases was there a history of trauma or pre-existing nævus. Sections showed proliferative changes in the epidermis, which also contained large amounts of pigment, but the most striking pathological picture was to be seen in the corium, where there were masses of tissue of endothelial origin. Pigment was absent in the derma, and the skin glands were unaffected.

(26) Lichen Planus Accompanied by Bleb Formation.

Attention is drawn by Douglas Montgomery to the occurrence of this rare phenomenon (*Journ. Cutan. Dis.*, October, 1916). He points out that from the histological examination, which shows a cleavage of the epithelium away from the papillary layer, one would expect this bleb formation to be clinically a not infrequent feature of *lichen planus*. In an aged Spaniard with typical *lichen planus* on the trunk, limbs and mucous membrane of the mouth, Montgomery observed blebs, associated with typical lichen papules on the legs. They varied in size from a small blister to half a hen's egg, and the contents were either serous, purple, or citron yellow in colour. The blebs did not appear to develope from pre-existing papules. The patient had been kept constipated, and there was intestinal fermentation. The severity of the eruption could be attributed to these factors, for after regulation of the bowels and suitable feeding, the lichen subsided. In considering the differential diagnosis of this condition it is necessary to remember that arsenic, which is so frequently prescribed in *lichen planus*, may itself produce a bullous eruption. It has also to be differentiated from pemphigus, as well as some concomitant disease such as *erythema multiforme*, or a bullous impetigo.

(27) Acrodermatitis Hiemalis.

Hartzell (*Journ. Cutan. Dis.*, November, 1916) describes four cases of *acrodermatitis hiemalis*. All occurred in young adults, during the autumn or winter months, and appeared in crops at two or three weeks intervals. The lesions were situated on the fingers, especially on the dorsal surfaces; in one case the toes, in another the ears were also affected. They were characterized by small, flat, dull red papules, a lesser number of small erythematous patches, and a few discrete vesicles. Objective symptoms complained of were severe itching and burning. The lesions in some cases resembled chilblains, in others they resembled a papulo-necrotic tuberculide, but differed from the latter in the course they pursued, in their marked seasonal incidence, and in the limitation of the eruption to the hands. In only one of the cases was there pustulation, or scarring, as noted by Crocker, who first drew attention to this condition in 1900, under the name of *acrodermatitis pustulosa hiemalis*. Ichthyol was the drug which afforded the most relief.

(28) Lateral Skiagrams of the Hip-joint.

P. N. Hickey finds that early lesions of tubercular disease of the hip-joint may be detected some time before they are revealed by ordinary radiography if the skiagram depicts the lateral view of the hip-joint (*Americ. Journ. of Roentg.*, June, 1916). He describes a method which can be applied in all cases in which pain or disability does not prevent the patient from being moved. The patient is placed on the affected side, and the affected thigh is fixed at right angles to the long axis of the body. The rays are directed downwards and backwards to 25°. He usually raises the other leg.

(29) The Treatment of Tubercular Adenitis by X-rays.

R. H. Boggs (*New York Med. Journ.*, May 27, 1916) compares the treatment of tubercular adenitis by Röntgen rays with other methods of treatment. Tubercular glands are often more widely distributed than the clinical signs would indicate, and they are frequently found in situations which are difficult to reach by means other than X-rays. For these reasons he concludes that radiological treatment is the most suitable. When modern methods are employed the end results of radiotherapy are better than those of surgery. It is alleged that 90% of these cases can be permanently cured by radiation. The method of action of the rays in these cases has not been determined; they are not bactericidal. It has been suggested that the rays destroy tissues of low resistance, and leave the soil barren. His experience has taught him that the best results are obtained with small doses, and that it is inadvisable to employ massive radiation in these cases.

(30) The Radiology of the Duodenum.

J. T. Case (*Americ. Journ. of Roentg.*, June, 1916) points out that the main lesions situated in the duodenum are those causing obstruction, disease of the gall tract involving the duodenum, certain stages of pancreatic disease, diverticula of the duodenum other than that of the ampulla of Vater and dilatations and tumours involving the ampulla of Vater. He gives an ample description of the anatomy of the duodenum, and deals with the various affections from an anatomical point of view. He then proceeds to describe the technique employed in making radiographic diagnoses. He states that duodenal obstruction below the *pars superior* is uncommon, and that Lane's duodeno-jejunal kink has no constant or definite relation to duodenal obstruction. He has been able to demonstrate the kink in a great many patients. His observations have taught him that the "writhing duodenum" described by Jordan is not pathognomonic of duodenal obstruction, since it can be observed in the majority of thin people. He warns radiologists against diagnosing duodenal stasis in patients in the horizontal position. Under these conditions the duodenum may ride over the spine in such a way as to simulate duodenal obstruction. He has only seen one case of carcinoma of the duodenum, and concludes from this fact that this condition is exceedingly rare. He has also come to the conclusion that simple ulceration of the duodenum affecting the second or third parts is uncommon. He points out that a differential diagosis between cholecystic and pancreatic tumours can sometimes be made by having regard to the position, form, etc., of the duodenum. True duodenal diverticula are rare, and have to be distinguished from dilatations of the ampulla of Vater. In more than half the number of cases in which he found a dilatation of the ampulla of Vater the clinical signs and symptoms were those of a chronic pancreatitis. Many of the patients had multiple diverticula of the colon, and in some both the duodenal and the pancreatic lesions were present.

BIOLOGICAL CHEMISTRY.

(31) Diagnosis of Pleural and Peritoneal Effusions.

A. Javal has found that the estimation of the amounts of the various proteins in pleural and peritoneal effusions provides data for the differentiation of inflammatory exudations from mechanical transudates (*Journ. de Physiol. et Path. Générale*, March, 1916). He has determined the titre of the reactivity with alkali and the quantities of total protein, of protein precipitated by diluted acetic acid, of serum-albumin and of serum-globulin in each fluid. The fluids have been tested for the reaction of Rivalta. The ratio of the amount of globulin to the amount of albumin has also been calculated. The results

obtained are considered by the author in relation to the conclusions deduced from a cytological examination of the cells suspended in the effusion. Pleuritic effusions due to an infective germ contain more than 35 gm. total proteins and more than one gramme of protein precipitable with dilute acetic acid, in each litre. They yield a positive result with Rivalta's test. These characters are independent of the nature of the infecting micro-organism. Hydrothorax is characterized by the presence in the transudate of less than 35 gm. of total protein per litre, and of less than one gramme of protein precipitated by dilute acetic acid. Rivalta's reaction is negative. Cardiac pleurisies resemble hydrothorax in the chemical characters of the effusion. Ascitic fluids produced by tubercular or malignant processes, yield more than 40 gm. of total protein per litre. The reaction of Rivalta is positive. Ascitic fluids due to cirrhosis contain less than 30 gm. of total protein in each litre. The reaction of Rivalta is negative. Ascitic fluids consequent upon cardiac lesions show chemical characters intermediate between those due to Laennec's cirrhosis and those due to peritonitis.

(32) Estimation of Glucose in Human Blood.

H. Rainy and C. M. Hawick have modified the method of I. Bang for the clinical estimation of glucose in human blood (*Proc. Roy. Soc. Edin.*, September, 1916). About 100 mg. blood are soaked up into a small piece of filter paper which is contained in a small weighing bottle, fitted with a ground stopper. The paper is weighed before and after the addition of the blood on a balance which will weigh milligrammes accurately. This modification avoids the use of a torsion balance. The paper is placed in a short, wide test-tube, after being exposed to the air for five minutes to permit of evaporation. A measured amount of a boiling solution of potassium chloride is poured on the paper. This coagulates the proteins. The albumin remains in the paper, while the sugar diffuses into the liquid. After one hour the liquid is poured into a small Jena flask. The paper is washed by the addition of a further quantity of solution of potassium chloride. A measured amount of solution of cupric hydrate is added. These solutions are freed from air by boiling them for some minutes before use. The Jena flask is fitted with rubber tubing, as usual in Bang's method, and boiled for two minutes at a fixed rate. The rubber tubing is clipped with artery forceps, the flask removed from the flame and cooled in running water. The rubber tubing is slipped off, the leading tube of a carbon dioxide generator immediately inserted into the flask and the gas passed into the flask. The cuprous chloride present is estimated by titration with $N/_{200}$ iodine, using starch as an indicator. The iodine solution is prepared with cold boiled-out distilled water. The addition of a known quantity of glucose is avoided by this method. As an example of the use of this method, some results are given in the case of a young man who received 280 gm. glucose by the mouth. Specimens of blood and urine were taken before and, at intervals, after the administration. The sugar was given at noon, when the percentage in the blood was 0.120. After forty minutes the percentage was 0.284, after 70 min. 0.270, after 100 min. 0.245, after 170 min. 0.189, and after 270 min. 0.189. Sugar appeared in the urine, reached a maximum in 105 minutes and then rapidly diminished.

(33) Effect of Parturition on Cow's Milk.

C. H. Eckles and L. S. Palmer have examined the influence of parturition on the composition and properties of the milk and the milk-fat of the cow (*Journ. Biol. Chem.*, November, 1916). The present study forms portion of a general investigation of cow's milk conducted at the Missouri Agricultural Experiment Station. It is usually held that cow's milk is not suitable for human consumption for some time after parturition. Opinions, however, differ as to the length of time that the milk is unfit for food. Some authorities consider as low a period as two days as the proper interval, while others prescribe as long a period as 15 days during which the milk should be withheld from use. The American Association of Medical Milk Commissions places the period at seven days. The evidence in support of the selection of this time is vague. While there are many analyses which give much information on the composition of colostrum, the literature appears to be lacking in exact information as to the healthfulness of cow's milk immediately after parturition. The data which are offered in the present paper, deal with two factors, the effect of milking the cow up to the time of parturition and the influence of the length of time that the cow is dry before parturition. It is not a common practice among dairymen to milk a cow up to the time of delivery of the calf. It is believed that more milk will be produced in lactation if the cow is given a rest of several weeks before parturition. Continuous milking is, however, a common practice in some localities. Three cows were used in this investigation. The composition and properties of the milk were studied for some months, to obtain reliable data. A considerable series of analyses were made, to ascertain the composition of the milk and the characters of the milk-fat. These figures, and others available, show that parturition in the case of the cow is usually accompanied by the production of milk of extremely abnormal composition. However, if the cows are milked up to parturition, the change is much less marked. The colostrum milk and the milk-fat under these conditions follow closely the composition of the milk and milk-fat given before delivery. The principal change occurring in the composition of the milk at the end of pregnancy in the cow is an increase in the amount of proteins coagulable by heat. This increase culminates in the milk secreted just after parturition. The longer the cow is dry before parturition the greater is the change in the composition of the milk. As the alleged harmful effects of colostral milk have been ascribed to the altered characters of the fats secreted in the milk at this period, attention has been paid to this question. No changes in the properties or constituents of milk-fat have been detected. This study, in common with others from the same laboratory, is notable because of the accuracy of the work. The whole of the milk secreted by each cow is subjected to analysis. The erroneous practice of analysing a portion of the milk secreted each day and of assuming that the remainder of the milk secreted varies in the same way is avoided.

(34) Organic Acids in the Stomach After Fasting.

L. Pron (*C.R. Soc. Biol.*, Paris, June 3, 1916) has noted the presence of organic acids in the contents of the stomach the seat of pathological changes after many hours without food. The presence of the acids produced by fermentation has been observed in 167 out of 194 examinations of the gastric contents after fasting. The tests have been made immediately after removing the material from the stomach. The methods used have determined the quantity as well as the nature of the acid present. Pure lactic acid has been detected in 93 out of 167 cases, and volatile fatty acids in the remaining 74 cases. The amount of acid has varied between 20 centigrammes and 1.4 grammes. The absence of food from the stomach has been ascertained in all these cases by microscopical examination of the liquid removed from the stomach. Secondary fermentation of the food is therefore excluded in these cases. The acid is believed to be derived from a bacterial fermentation of the mucus secreted by the resting organ.

(35) Four Carbon Atom Acids in Jaundice.

J. Colombe and G. Denisot (*C.R. Soc. Biol.*, Paris, May 20, 1916) have detected the presence of aceto-acetic acid and acetone in the urine of a patient suffering from severe jaundice. The patient, who became rapidly comatose, showed symptoms similar to those of diabetic coma. A state of burning delirium and unrest was followed by progressive torpor, with rapid breathing, with areas of cutaneous anæsthesia, with sluggish reflex to light, and with low temperature. Within a few hours the muscles became completely relaxed. There was general anæsthesia, with loss of the corneal and pupillary reflexes. At the same time the urine became clear. The biliary pigments and biliary salts diminished in amount. The quantity of urea was greatly lessened. Death followed without any awakening from the comatose state.

THE FATE OF PROTEINS.

By invitation, Dr. F. Gowland Hopkins delivered a lecture[1] on "Newer Standpoints in the Study of Nutrition," before the Chemical Society, upon May 18, 1916. He discussed, on certain limited lines, the fate of protein nutriment as it was dealt with in the animal body. Twenty years previously it had seemed quite hopeless to attempt any explanation of the fundamental aspect of metabolism from a clear chemical point of view. The illumination that had resulted from the discovery of the structure of the protein molecule which was due largely, but by no means so exclusively as some people seemed to think, to Emil Fischer and his workers, had been sufficient to increase greatly their understanding of the processes which occurred in the animal. Progress had been made rapidly within the last few years as a result of a physiological advance, which had shown the animal body to possess a peculiarity of metabolism which rendered the prospect of experimental study very favourable. If the molecular reconstructions which accompanied nitrogenous metabolism were wholly or mainly initiated in the intact molecule of protein itself, the complexity of the products of the changes would present the biochemist with a task of extreme difficulty. Physiologists had, however, found that complete hydrolysis of the protein preceded other processes of change. The complex protein molecule was dissected before it was used for reconstruction, for supplying energy or for other purpose. The animal body dealt with the constituent amino-acids of the proteins, and these were substances with clear-cut chemical properties based upon known molecular constitutions.

The typical protein was split on hydrolysis into an assembly of α-amino acids, of which eighteen were known. The diversity of the molecular structure of these acids accounted for the many lines followed in the katabolism of protein. Among these diverse substances were aliphatic substances of various types, mono-carboxylic and di-carboxylic acids, mono-amino and di-amino-derivatives, some with straight and others with branched chains of carbon atoms. One containing sulphur was a thio-compound, another had a guanidine grouping. In addition there were aromatic substances, some being monocyclic and others heterocyclic. The benzene, indole and iminazole rings had each one or more representatives. Each of these molecular arrangements imparted a special significance to the properties of the substances and influenced their fate in the body. When a person ate a particular protein, well-nigh twenty substances were taken into the blood to exert an action on nutrition.

It had been shown that an animal might display quite normal health when fed upon protein which had been totally hydrolysed before it was eaten. When a mixture of all the free amino-acids obtained from protein had entirely replaced the intact protein of the food an adult animal maintained its weight and a young animal grew. A young dog fed on a mixture of free amino-acids from a completely digested protein as a sole supply of nitrogen gained 22 lbs. in weight during 100 days, while there was nothing to suggest that the experiment might not have been continued indefinitely.

The part played by the individual amino-acids in the nutrition of the body could be examined by feeding animals on mixtures of amino-acids from which certain members were absent. Since the animal flourished on a mixture which could be fractionated, it was easy to determine the effect on growth of withdrawing one or more amino-acid. It could be decided in this way whether the animal could dispense with any kind of material, or whether the elements of the tissues could manufacture it within the body. The technical difficulties of freeing mixtures produced by the hydrolysis of protein from any particular member had not been overcome, but as methods of separation were devised they could be utilized in this phase of the study of metabolism.

There had been many experiments made upon rats since these animals had been used for earlier work on metabolism. In consequence, information as to the rate of growth of rats had been accumulated. The rats had been fed upon diets comprised of mixtures of amino-acids combined with suitable amounts of filtered butter-fat or lard, potato starch, cane sugar and inorganic salts. It was also essential to supply vitamine, which was given as an alcoholic extract of fresh milk. This extract, which was most efficient, contained no nitrogen. When a protein such as casein was subjected to hydrolysis by boiling with sulphuric acid for forty hours one amino-acid, tryptophane, was destroyed. Tryptophane contained the indole ring. In consequence, the mixed amino-acids lacked this heterocyclic nucleus. Young rats fed on this mixture plus 2% tryptophane gained in weight, but when the added tryptophane was omitted they lost weight and ultimately died. This fact had been confirmed on dogs.

By a simple method arginine and histidine, two di-amino-acids, could be separated from the rest of the mixture. When these bodies were removed from the diet of young rats growth gave place to loss of weight. On restoration of these substances growth began again. It was evident that the simultaneous removal of these units which contained the guanidine and iminazole groupings interfered with the nutrition of the animal. Since animal proteins always contained these groups the tissues were either not able to make them from other material, or the synthetic power of the tissues could not keep pace with the demand of the normal animal.

F. W. Foreman, of Cambridge, had described a method of isolating two acids from the mixture obtained on hydrolysis, viz., aspartic and glutaminic acids. In casein these formed 28% by weight of the protein molecule. Rats fed on material from which these acids had been removed grew well. One animal had added 35% of its body weight during four weeks on a diet lacking these di-carboxylic acids. The contrast between removing tryptophane, which formed only 1½% of casein and aspartic and glutaminic acids, which formed almost 30%, illustrated the importance of the chemical constitution of the nitrogenous food. Further, the supply of some amino-acids appeared more important than the supply of others. The loss of weight in withdrawing trytophane was more rapid than after withdrawing arginine and histidine. This loss of weight was independent of the weight of material absent from the diet. The lack of a small weight of tryptophane occasioned more wasting than the absence of a greater weight of arginine and histidine.

Although a great diversity obtained among the amino-acids some were more or less closely related in respect to chemical structure. Thus tyrosine and phenyl-alanine differed only in regard to the presence of an hydroxyl group in the former. A mixture of amino-acids, freed as far as possible from tyrosine, maintained a normal rate of growth. Again, arginine and histidine appeared to possess an apparent equivalence in metabolism. Whereas the withdrawal of both of these hexone bases led to failure on the part of the body to build its protein, the presence of either arginine or histidine was sufficient for some amount of growth.

These experiments suggested that some amino-acids must be supplied to the body for growth to occur, whereas others need not be present in the food. It had been found that there was a remarkably slow loss of weight when an animal was supplied with five of the eighteen acids usually liberated from the proteins of the food. These five substances were tryptophane, histidine, tyrosine, lysine and cystine. On the other hand, an animal lost weight rapidly and soon died when it was given leucine, valine, alanine, glycine and glutaminic acid.

The fate of the amino-acids might be followed in certain directions. Some, as had been seen, were used to build or rebuild the tissues of the body; others underwent immediate oxidation, while their nitrogen served for the production of urea. Some experiments that had been carried out along with those already described illustrated a further use. In all animals except man the end-product of the metabolism of the purine nucleus was allantoin. It had been noted that when histidine and arginine were withdrawn from the diet that the excretion of allantoin was greatly lessened. A study of the structure of the histidine nucleus and of the

[1] *Journal of the Chemical Society*, No. 644, June, 1916, p. 629.

purine ring revealed certain points of similarity of structure. It appeared not unlikely that the nucleotides which form so essential constituents of all tissues were supplied from histidine.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held on December 15, 1916, at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, Dr. Sinclair Gillies, the President, in the chair. The contributions in all cases save one were from members who had returned from active service.

Dr. H. M. Moran read a paper on "Some Points on the Treatment of Septic Compound Fractures" (see page 71).

Dr. A. E. Mills read a paper on "Some Nerve Injuries Seen on Active Service" (see page 73).

Dr. J. Morton read a paper on "Some Impressions of Medical Work at the Front" (see page 75).

Dr. J. E. F. Deakin read a paper on "Some Experiences with the No. 2 Australian Stationary Hospital" (see page 76).

Dr. A. W. Campbell gave an account of his experiences with the No. 2 Australian General Hospital. He pointed out that it was a year since he had returned, and that he might be considered a back number. He was nevertheless glad to contribute a little to the discussion. He had served in the No. 2 Australian General Hospital, which he called the "Cinderella" of the hospitals. It was under the command of Colonel Martin, but had not so many of the leading members of the profession on its staff as other hospitals. It had, however, a good working team. Its staff of nurses occupied his attention. He said that these women could not be praised too highly. The Australian-trained nurse was second to none, and in parenthesis he would say the same of the Australian-trained doctor. At first they were stationed near Cairo, a dead end. He felt that the staff and equipment were to a certain extent wasted there. Had they been sent to Alexandria things would have been different. The members of staff, however, thanked their stars that they were not at Lemnos. Although the hospital had defects, they must remember that it was an untried unit in a large organization gathered together under very great difficulty.

He pointed out that active service under these conditions provided ample opportunity for enriching experience. Every one of them saw numbers of important and interesting cases. These cases were so numerous that he could hardly name them, let alone discuss them. He had been immensely struck by the rapidity with which a huge transport could be established, and the cool manner in which a great convoy could be swallowed up. In an incredibly short space of time vast numbers of men could be placed in comfortable beds. Even the commissariat had not been overtaxed.

The third matter to which he wished to draw attention was the extraordinary amount of red tape which had bound them. He had acted as Secretary to the Hospital, and had learned a great deal. Form A.36 was an excellent example of waste of energy. It took an orderly all his time to complete the entries in this form. It was too big for a typewriter. This form cost each hospital at least three guineas a week to keep up. Notwithstanding this, all the information contained was to be found in Form W.3034.

He had served on a commission at Alexandria, the object of which was to get rid of this red tape. There were two other commissioners, swells whose breasts were covered with ribbons. The commission recommended that this work should be cut down by one-half. Dr. Campbell claimed some credit for having sat on this commission with these distinguished officers.

Dr. David Thomas read a paper on "The Work of the Standing and Travelling Medical Boards in the Scottish Command."

Dr. Lucy Gullett had been impressed by the wonderful work that she had seen done at the front. She had found that the work was better done than that of the ordinary out-patient department of a hospital. Thousands of cases passed through the casualty clearing station, and she had formed the opinion that the dressing of each wound was the finest that she had ever seen. Every penetrating wound, no matter how small, had been opened freely. Antitetanic serum was always given. She had noted that fragments of shrapnel and of clothing were contained in the wounds she had seen. In many cases the wound of entry was small; but the wound of exit was not small. She regarded this as evidence of the reversal of bullets. There were bullets which carried great tracks of tissue before them, like explosive bullets rather than like reversed ones.

Dr. Gullett also referred to the wonderful train work which she had witnessed. In the Verdun district there were 57,000 beds for wounded. This figure would give some idea of the extent of the hospital organization throughout the western front. She spoke enthusiastically of the distribution of the work in various hospitals. There was one special hospital for plastic operations on the face, and another hospital at which head wounds were attended to and nerve suturing undertaken. It was remarkable that before the introduction of steel helmets but few head wounds were seen. The majority of the soldiers who had received head wounds had been killed. The steel helmet had altered this, and depressed fractures of the skull had become common. An incision was made through the soft tissues down to the opening in the skull, and the bone and pericranium were cleaned up. Cranioplasty was then undertaken, eight or nine strips of the costal cartilages of the seventh and eighth ribs being used for this purpose. The edges of the pericranium were everted, and were fixed in position with kangaroo tendon. A regular mosaic was built up by means of the strips of cartilage. The immediate results were exceedingly good.

The French Government provided an artificial limb for every soldier who had lost a limb. In the case of legs a peg or bucket leg was provided, and if the man wanted a jointed limb he could obtain it by paying the difference in price. Dr. Gullett described this arrangement by stating that the Government provided the necessity and the men provided the luxury. The pensions given in France varied according to the injury. One man whom she had seen got £180; but there was not much left of him. For the loss of a leg a man received £40, and for the loss of an arm £50.

The Honourable J. B. Nash spoke of his experience of military hospitals in Egypt. He maintained that the personnel of these hospitals was capable of doing work of any degree. The medical men who had been sent out, however, had been handicapped by inexperience of military work. He recognized that it was unavoidable that the Australian hospitals had been placed far from the units to which they were attached. The war was spread over so much of the world's surface that it was often impossible to bring a hospital near to the seat of active service. Dr. Nash then turned his attention to the wounded from the fighting at the Aegean Sea. There were many slight wounds inflicted by bullets, and these caused small effects. Classically, a bullet caused a small wound of entrance and a larger wound of exit. In the cases to which he referred, both wounds were small. He held that the sharp-pointed bullets used by the Turks and the other enemies were the most humane. The British bullet had a blunt point. He protested against the use of the term "explosive" as applied to a bullet. A bullet could not have an explosive power; it might be injured in the barrel of a rifle, or it might strike an object and become deformed. An altered bullet would produce tears and contusions.

Dr. Archie Aspinall said that he had been interested in Dr. Nash's description of bullet wounds. He had been impressed by the extreme severity of the bullet wounds received by our men at the landing. If the bullet struck a bone or tendon a huge wound of exit resulted. In skull wounds the wound of entrance was small, but practically the whole of the side of the skull was found to be blown in. He considered that the thin nickelling of the Turkish bullet was responsible for this smashing effect.

The way in which Dr. Deakin and Dr. Stacy had carried out their work on the trawlers had aroused his admiration. The wounded were well looked after and well fed. He was sorry to say that this was not the case elsewhere. He did

not quite agree with Dr. Deakin when he compared the beach at Gallipoli with the beach at Manly. When it started to blow the sea got up in a most uncomfortable way at Gallipoli, and it was most difficult to tranship the wounded men. They found it necessary to use cargo nets.

In his reply, Dr. Moran turned his attention to the question of bullets. The Arab bullet of low velocity was of uncovered lead, and produced a large wound. Pointed bullets were only humane when they passed through soft tissues. When they struck bone or other resistant tissue they became deflected, and the so-called explosive effect resulted. A reversed bullet, especially if it ricochetted, did immense damage.

Dr. Morton objected to a comparison between orderlies and nurses. A nurse had to undero a course of training extending over at least four years. It should not be expected that an orderly could pick up the knowledge and skill acquired during this training in the course of a month. That was the whole secret. In regard to bullets, he held that a sharp bullet was not a merciful one. He referred to the third force of bullet, namely, that of oscillation. At short range it was wobbling, and often tilted over. He referred to an experiment carried out in a tin containing fluid. The force of concussion was transmitted in all directions, and this he considered was the explanation of the effect of damaging bullets.

Dr. Deakin stated that he did not intend to cast any reflections on nurses. The orderlies did their work very well, but not so well as female trained nurses. He agreed with Dr. Campbell that Australian-trained nurses were superior to all others. In the course of a short reference to bullet wounds, he referred to the fact that as it was reaching the end of its course a bullet frequently turned over and over.

Dr. F. Guy Griffiths exhibited a series of "electrograms" taken by Sergeant James Shearer, Royal Army Medical Corps, and sent him by his brother, Captain J. N. Griffiths, Royal Army Medical Corps. Shearer had been trained as a physicist, and had graduated in America. Some of his views on matters connected with physics were said to be brilliant, but irregular. He had been employed by the Panama Canal Commission as a radiologist. Dr. Griffiths referred to the description of his work in producing delineations of internal organs which had appeared in the *British Medical Journal* of September 30, 1916. It would seem that Shearer had experimented with a wireless telegraphic detector, and that a lucky fluke had enabled him to achieve the results at which he was deliberately aiming. It was quite apparent that no one understood how the pictures were produced. Dr. Griffiths handed round photographic prints prepared from the original wax negatives of the following conditions: (1) The lung of a man suffering from gas poisoning; (2) an abscess in the cerebellum; (3) a wound in the kidney; (4) the vessels of the stomach; (5) lacerations of the liver produced by a fragment of shell; and (6) a normal brain. The seventh exhibit was an original wax record of a subdural hæmorrhage from a case of shell shock. Dr. Griffiths pointed out how extraordinarily valuable this work already was, and how much more it promised to be when fully developed.

A meeting of the South Australia Branch was held on November 30, 1916, at the House of the Branch, Hindmarsh Square, Adelaide.

Dr. B. Poulton and Captain P. W. Rice demonstrated the ova of *Bilharzia haematobium* obtained from the urine of a military patient. The man had been under treatment at the No. 7 Australian General Hospital at Keswick for a shrapnel wound of the knee. He had received this wound at Rumani on August 11, 1916. He had been on service in Egypt for eight months, and in Gallipoli for 17 months, and had bathed in fresh water canals contrary to orders.

Since September, 1916, he has noticed dysuria and penile pain and the occasional occurrence of blood in the urine toward the end of micturition. The absence of a calculus was determined by the sound. After several examinations, ova were found in the urine. They were still persisting. There were no rectal symptoms, and no ova had been discovered in the stools.

Another returned soldier in the same ward had developed similar urinary symptoms during convalescence after an operation for hernia. Ova had not been found in his urine up to the time of reporting. The possibility of bilharziosis becoming prevalent, especially in sub-tropical Australia, indicated the desirability of segregating all carriers of the parasite found. Dr. Poulton referred to a memorandum which had been issued by the Director-General of Medical Services from the General Headquarters of the Mediterranean Expeditionary Force on February 1, 1916. The memorandum is as follows:—

Bilharziosis.

Life History of the Parasite.

Bilharziosis is exceedingly common in Egypt. Investigations made in different districts show that not uncommonly 30% to 40% of the population are affected, and in some districts as many as 60% to 90%.

In the Canal area, however, the disease appears, according to present information, to be less prevalent than in some other parts.

Recent researches have established for the first time the main facts of the life history of the parasites causing Egyptian bilharziosis.

After escaping from the body by the urinary passages or rectum, the egg, if it reaches water, is hatched into a free swimming ciliated larva (*miracidium*), which dies in about 24 hours unless it enters a suitable host. The intermediate hosts, into the bodies of which the larvæ enter, are fresh water molluscs (water snails). There each larva undergoes a further development into a sporocyst, which in turn gives off many daughter-sporocysts, and these finally produce innumerable *cercariae*. These *cercariae* are discharged from the molluscs and swim free in the water. The *cercariae* are about 1½ mm. in length, and though they can be seen by the naked eye in clear water in a test tube, they cannot be detected readily in natural water.

The commonest of Egyptian molluscs which harbour bilharzia belong to different species of *Bullinus* and *Planorbis*. Those in which the *cercariae* have actually been determined are illustrated.*

Bullinus contortus (x 2).

Planorbis boissyi (natural size).

The *Bullinus* is common in the Sweet Water Canal and its branches, and the *Planorbis* in the marshes and ditches around Ismailia. They are easily recognized as snail-like animals when found on the surface of water, but when attached to vegetables or at the bottom they may be overlooked.

Their presence in water in Egypt must always be looked upon as indicating a potentially dangerous water as regards bilharziosis. Where there is a flow of water their local absence must not be taken as an indication of safety.

The *cercariae*, after escape from the molluscs, are free swimming organisms, and it has been demonstrated experimentally that they can gain entrance to the body, both

*The reproductions are from Dr. Poulton's sketches.

through the skin and by piercing the mucous membrane, if swallowed with the water. They can survive when free in the water for 36 hours; none have been found alive after 48 hours; but an infected mollusc will continue to discharge *cercariae* for a long time, certainly more than three weeks.

They can survive on a damp surface from which visible water has disappeared, but are immediately killed if the drying process proceeds to the extent of desiccation.

In the body the *cercariae* are carried by the blood to the liver and get into the portal system in the branches of which they develope into the full-grown worms, male and female; the process from entry to full maturity of the paired, egg-producing adults taking about two months.

Prevention.

From the life history of the parasite, as briefly sketched above, the following conclusions bearing on the prevention of the disease may be deduced:—

(1) All permanent collections of water, such as the Nile, canals, marshes and birkets, are potentially dangerous, depending upon the presence of the essential intermediary hosts.

The molluscs have not yet been found in wells, but their absence can only be definitely determined by examination of each well.

(2) Bathing, wading, washing in or drinking, in fact personal contact of any kind with infected water is risky.

(3) Free swimming *cercariae* readily pass through stocking material, and through the finest silk mesh. Therefore, clothes, unless waterproof, are no adequate protection against them when the wearer is wading in infected water, as for instance in snipe shooting.

(4) Infected troops cannot reinfect themselves or spread the disease directly to others. They could only convey the disease by their excreta reaching water in which a local mollusc could efficiently act as carrier.

(5) Infection actually takes place both by the mouth and through the skin.

(6) Storage of raw water for 48 hours will ensure the death of all *cercariae*, but on drawing the water for storage it is essential that no infected molluscs are admitted. Screening with gauze having eight meshes to the linear inch will ensure this.

(7) The *cercariae* are killed instantly by exposure to a temperature of 50° C.

(8) Fresh chlorinated lime 1 in 50,000 kills them in three minutes. In a solution of 1 in 300,000 (1 in 100,000 of available chlorine) they are alive and active after 1½ hours. Therefore the amount of chlorinated lime ordinarily used for killing bacteria in water is not sufficient to kill bilharzia *cercariae*.

(9) Sodium bisulphate, 1 in 1,000, kills them almost immediately. Two of the sodium bisulphate tablets used for purifying water dissolved in a water-bottle full of water represent a strength of about 1 in 700, and will therefore render the water safe.

(10) Efficient filtration renders the water safe as regards bilharzia infection. The filtered water supplied to the troops of the Mediterranean Expeditionary Force may be regarded as quite safe.

(11) Cresol (of the strength supplied for disinfecting purposes) in the proportion of 1 in 10,000 (1 oz. to 60 gallons) well mixed with the water kills *cercariae* almost immediately. Precautions must be taken that no molluscs are admitted in drawing the water, which should be done with a pump rather than buckets. Water so treated is safe for washing and bathing.

MEDICO-POLITICAL.

A meeting was held of the New South Wales Branch on November 24, 1916, at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, Dr. Sinclair Gillies, the President, in the chair.

Dr. R. H. Todd, the Honorary Secretary, moved on behalf of the Council:—

> That in no case should the fee to be paid to a doctor for medical or surgical attendance on a patient in a hospital be fixed by the management of the hospital.

Dr. Todd explained that the necessity of making this a resolution of the Branch had arisen out of complaints which had been received that in certain hospitals the following practice obtained. A patient applied to the management of a hospital, and all arrangements were made without any reference to the medical practitioner under whose care the patient would be admitted.

Dr. Andrew Davidson seconded the motion, which was carried *nemine contradicente*.

Dr. R. H. Todd, the Honorary Secretary, also moved on behalf of the Council:—

> That the regulation governing "honorary associates" of 28th March, 1913, namely:—
>
> > Fourth and fifth year undergraduates in the Medical School of the University of Sydney shall be entitled to be elected honorary associates of the Branch without subscription, with the right to attend meetings, without the right of speaking or voting.
>
> be amended to read as follows, *viz.*:—
>
> > Undergraduates in Medicine of the University of Sydney who are members of the University of Sydney Society shall be entitled to be enrolled as honorary associates of the Branch, without subscription, with a right to attend meetings of the Branch, but without the right of speaking or voting. Provided that first, second and third year undergraduates so enrolled shall be entitled to attend the scientific meetings only.

Dr. Todd explained the position and the reasons which had actuated the Council in acceding to the requests of the students.

Dr. W. F. Litchfield seconded the motion. A short discussion followed, and the motion was carried.

The following have been elected members of the New South Wales Branch:—

Dr. Arthur M. Burge, Warren.
Dr. W. K. Dale, Orange.
Dr. Gordon W. Bray, Sydney.
Dr. Pierre A. L. Quessy, Marrickville.
Dr. Robert Mitchell Mackay, Lidcombe.
Dr. D. H. Graham, Delegate.

Naval and Military.

It is with great regret that we note from an announcement in the *Sydney Morning Herald* of January 22, 1917, that Captain Benjamin Digby Gibson was accidentally drowned in Egypt while serving as medical officer to the Light Horse, Australian Imperial Force.

The 265th list of casualties, which was issued on January 17, 1917, contains the names of 956 officers and men. Among those reported ill in hospital are Captain C. W. Sinclair and Captain C. R. Palmer. A double list, the 266th and 267th, was issued on January 22, 1917. There are 838 names, including those of Major H. L. St. V. Welch and Captain J. B. Metcalfe, both of whom are ill in hospital.

The announcement of the undermentioned appointments appears in the *Commonwealth Gazette* of January 18, 1917:—

Army Medical Corps.

2nd Australian Division.

To be Temporary Major—
Captain G. C. Byrne. Dated 7th August, 1916.

5th Australian Division.

To be Temporary Major—
Captain C. Mattei. Dated 7th August, 1916.

3rd Light Horse Field Ambulance.

To be Temporary Major—
Captain W. R. C. Mainwaring. Dated 7th August, 1916.

6th Field Ambulance.

Major A. H. Moseley is granted the temporary rank of Lieutenant-Colonel whilst commanding the 6th Field Ambulance. Dated 7th August, 1916.

1st Australian General Hospital.

To be Temporary Major—
Captain F. N. LeMessurier. Dated 7th August, 1916.

3rd Australian General Hospital.

To be Temporary Lieutenant-Colonels—
Major K. Smith and Major H. R. G. Poate. Dated 7th August, 1916.

No. 1 Auxiliary Hospital, Harefield.

To be Temporary Major—
Captain R. E. Shuter. Dated 17th July, 1916. (This cancels the notification respecting the promotion of this officer which appeared in Executive Minute No. 999/1916, promulgated in *Commonwealth of Australia Gazette*, No. 176, dated 30th November, 1916.)

No. 1 Australian Auxiliary Hospital.

To be Temporary Major—
Captain J. S. Verco. Dated 7th August, 1916.

1st Australian Casualty Clearing Station.

To be Quartermaster and Honorary Lieutenant—
Warrant Officer Leigh Johnston. Dated 2nd September, 1916.

2nd Auxiliary Hospital.

Captain (temporary Major) R. E. Shuter to retain temporary rank of Major whilst commanding 2nd Auxiliary Hospital, Southall. Dated 1st September, 1916.

Obituary.

MATTHEW FRANCIS KELLY.

The Ballarat Division of the Victorian Branch of the British Medical Association have sustained a severe loss in the death of their President for the year, Matthew Francis Kelly. A few weeks ago Dr. Kelly contracted a septic wound in a finger, and, despite the skilful treatment of his colleagues, the septic process spread from its localized focus, and on December 27, 1916, he died of the septicæmia the immediate cause of death being œdema of the brain.

Matthew Francis Kelly was born at Kilmore in 1868. He received his scholastic education at Xavier College, and then enrolled himself as an undergraduate at the Melbourne University. He obtained the degrees of M.B., Ch.B., in 1892. Shortly after graduating he settled in Echuca, where he built up a valuable practice. While at Echuca he was elected to the surgical staff of the local hospital. In 1910 he acquired the practice of Dr. Cussen, in Ballarat. After a short residence in this city he was appointed Health Officer for Ballarat, on the death of Dr. Jordan. He was Honorary Medical Officer to the Nazareth House, and was associated with the Fire Brigade and Orphanage. He was always held in high esteem by his colleagues, and took an active interest in the work of the Victorian Branch of the British Medical Association. His patients, too, found him a man of exceptional intelligence, and a doctor in whom they could place full trust. His neighbours recognized him to be a man versed in the affairs of the world, and sought his assistance in connexion with many local and philanthropic movements. He was always as keen as any youngster in work or in play, and his association with the Ballarat Turf Club gained for him a large circle of friends. Dr. Kelly was a worthy member of the Roman Catholic Church. He leaves a widow, three daughters and one son, to whom his colleagues and friends have extended their deep sympathy in their sad bereavement.

Correspondence.

PRESCRIBING PHARMACISTS.

Sir,—The letter by "M.D." is only another instance of the trumpet sounding on deaf ears. Is it because the facts are not well known to the profession, every man whose pocket it touches, or is it because the public don't rise up in arms because of the outrageous and audacious system of absolute quackery which they are subjected to at the hands of dispensing pharmacists? Of course not, for of this the public remain in blissful ignorance. The pharmacists who, under the cloak of his registration as a pharmacist, poses as one who is the next best to a medical man, one who is versed in the science and arts of medicine, surgery, midwifery, diseases of women and children, together with the special branches of the eye, ear, nose, throat, etc., and fancies himself as such merely because he is by Act of Parliament qualified to dispense the prescriptions of the members of the medical profession, whereas he is no more qualified to make a diagnosis then the butcher, who, by the way, has a much more accurate knowledge of the location of the various organs of the body. All this is well known, but only by our profession. What if a vote were to be taken of the profession as to whether action should be taken by the B.M.A., would not every single man vote in favour if for no other reason than to safeguard the general public? If, again, the Trades Hall had the handling of this matter, would it not be fixed once and for all? Why, yes, we know it would. Why then does not the B.M.A. take the matter in hand, if only for public good. What would be the difficulty? None whatever, for the reason that it is a matter between the profession and those who carry out the work ordered. The profession need ask no one else, not even the Government, to take the necessary move, for the profession could do what the Government could not. In short, the profession could put a stop to all this quackery in one act. In fact, merely to make suggestion would be effectual, for it would never come to acting. What is more, any one suburb could carry out the move. The move is time enough to make more plain when it has been decided to take definite action by the profession.

It is well recognized that the profession lacks all business instincts, having no such training, but it only wants the ball to be set rolling, and this can only be accomplished by open correspondence demanding such a move. I therefore ask members to follow up this urgent matter. Drive it home and rub it in by correspondence, and it will be done; sound the trumpet until it is heard, and never sound "the last post" until the point is gained.

Yours, etc.,

PRO BONO PUBLICO.

Melbourne, Jan. 17, 1917.

A SIMPLE METHOD OF ARRESTING BLEEDING AFTER EXTRACTION OF TEETH.

Sir,—Some five years ago I was called to see a patient who was bleeding freely from the gums after extraction of a lower central incisor some 18 hours previously. The day previous I had been present at an operation for an extensive malignant condition of the upper jaw, which of necessity involved far greater damage to both bone and softer structures than the simple extraction of a tooth. It seemed to me the reason of no bleeding of any account after such an operation must have been largely due to the suturing together of the torn or cut soft parts; so I sutured the gums over the cavity where the tooth was removed, and tied together firmly the two raw surfaces, with the result that not another drop of blood escaped. Since then I have treated every case of bleeding after tooth extraction that I have been consulted about in the same way; and it is because the result has been the same as if a tap had been turned off, that I am writing to you, hoping the method may be of as much help to anyone who still adopts the plugging method, with all its uncertainty and pain, and who is ready to welcome any simpler and surer method, as it has been to me.

It may be a method generally known and adopted, but so far I have not seen it recommended in any book.

Yours, etc.,

FRANK L. DAVIES.

148 High Street, Malvern,
January 15, 1917.

THE FRIENDLY SOCIETIES AND THE B.M.A.

Sir,—It was with disappointment that I came away from the annual meeting of the Victorian B.M.A. last week, for, out of 32 members present, only six were lodge surgeons. This, coupled with the fact that two members of the former Council were defeated at the election, both hard fighters on the lodge question, shows that the lodge surgeons are apathetic to questions affecting their interests.

One hears the remark frequently, "What is the good of the B.M.A.?" but the member who does so is the very one who stays away from the meeting and criticizes. How can we have a strong Association while the members take no interest in the proceedings?

Are the problems affecting our profession so small and few that we can afford to neglect them? Surely anyone can see that the lodge question must come forward soon. Our truce with the lodges does not last for the duration of the war, but its actual terms state that "negotiations be deferred for the present." The time has now come for action. The cost of living has increased 30%, so that what was 14s. a year in 1914 is but 10s. now. Not a single thing has remained at the one price, except our lodge rate of pay; even the dispensary rate to lodge members has increased from 6s. to 8s. per year.

Our next problem is the certain introduction of national insurance or complete nationalization, and the basis of pay will be our old lodge rate, just as in Britain, where the lodge rate was made the *norm* of the National Insurance Act.

There is only one way to thrash these matters out, and that is to attend the meetings once a month.

Let us strengthen the hands of the Council, let them see we are keen on the problems affecting the organization, and let us have a live association.

It is of no use blaming the Council for their errors unless we can show it that we maintain an interest in their doings. Should it take steps in any direction it desires a firmly organized following behind it.

There is only one way we will get this lodge question settled, and that is by showing practically that we desire its settlement, and therefore every member must ask himself the questions, "Is it to my interest to be a member of the B.M.A.?" If so, "Is it a fair thing to ask the other man to do my work while I merely pay my subscription?" I sincerely hope that during 1917 there will be a big muster of men to the meetings, if only, by their mere presence, to give an added strength to those who are working for us.

Yours, etc.,

D. ROSENBERG.

267 Church Street, Richmond,
Victoria, December 17, 1916.

[The publication of Dr. Rosenberg's letter has been delayed. The question raised in the letter has been the subject of two discussions, once at an ordinary meeting and once at the annual general meeting of the Victorian Branch of the British Medical Association. On the former occasion it was decided by a large majority of those present and voting that the Victorian Branch had given an undertaking to the Friendly Societies to suspend negotiations during the continuation of the present national emergency. The majority held that it was a matter of honour to respect this truce until the Empire emerged victorious from its leviathan struggle.—Ed.]

Sir,—In a recent issue of *The Medical Journal of Australia* it is stated that the Council of the Victorian Branch of the B.M.A. had once more "referred" the Friendly Societies question. How is it that this matter is being so constantly, not "referred," but in reality deferred? Perhaps the answer to the following questions might hint at a cause, and, may be, open the eyes of the apparently numerous Rip Van Winkles in this State.

How many general practitioners, as distinct from purely academical men and Collins Street men, are on the Council of the Victorian Branch? In other words, have the Rip Van Winkles no representation? or, if they have, don't they even "watch for the week in May when laylocks blow," and wake up "just once a year."

Yours, etc.,

"ELIXIR CON."

Melbourne, January 10, 1917.

DIPHTHERIA IN SYDNEY.

"Inquirer" writes on January 17, 1917, for information of the weekly or monthly average number of cases of diphtheria in the metropolitan area of Sydney. During the 26 weeks ending January 6, 1917, 1,070 cases of diphtheria were notified within the metropolitan area of Sydney. This would yield a weekly average of 41.1. During the same period the average number of cases of diphtheria notified in the Melbourne metropolitan district was 62.5. The greatest number notified in any one week in Sydney was 95, and in Melbourne was 97.

Proceedings of the Australasian Medical Boards

NEW SOUTH WALES.

The following have been registered under the provisions of "The Medical Act, 1912 and 1915," as duly qualified medical practitioners:—

Burfitt, Charles Aloysius, M.B., M.S., 1916, Univ. Sydney.
Faithfull, Geoffrey Mervyn, M.B., M.S., 1916, Univ. Sydney.
Foy, Donovan Sylvester, M.B., M.S., 1916, Univ. Sydney.
Gardner, Robert Augustin, M.B., 1916, Univ. Sydney.
Hains, Clarence Cecil, M.B., M.S., 1916, Univ. Sydney.
Harris, Walter Terence Joseph, M.B., 1916, Univ. Sydney.
Noble, Ralph Athelstane, M.B., M.S., 1916, Univ. Sydney.
Oakeley, William Graham, M.B., 1916, Univ. Sydney.
Perry, Walter, M.B., M.S., 1916, Univ. Sydney.
Williams, Grosvenor John, M.B., M.S., 1916, Univ. Sydney.
Rubinowich, Abraham Solomon, M.B., B.S., 1914, Univ. Melbourne.
Noble, Frank Wesley, M.B., B.S., 1915, Univ. Aberdeen.
Turnbull, Frederick Charles, L.R.C.P., Lond., 1913, M.R.C.S., Eng., 1913.

For additional registration:—

Matheson, Christopher Norman, M.S., 1916, Univ. Sydney.

VICTORIA.

The following have been registered under the provisions of Part 1 of the "Medical Act, 1915," as legally qualified medical practitioners:—

Hurley, John Patrick Garvan, Camberwell, M.B., Ch.B., 1916, Melb.
McColl, Neil, Warracknabeal, M.B., Ch.B., 1916, Melb.
Purnell, Kenneth Claud, Geelong, M.B., Ch.B., 1916, Melb.
Webb, Vernon George, Parkville, M.B., Ch.B., 1916, Melb.

The following additional diplomas have been registered:—

Brown, Arthur Edward, M.B., Ch.B., Camb., 1916.
Murphy, John Thomas, F.R.C.S., Irel., 1910.

The names of the following deceased practitioners have been removed from the Register:—

Matthew Francis Kelly.
Charles Fetherstonhaugh.
Robert Crossley.
George Harward Brown.
Edward Wilkinson Deane.
Denis Doolan.
George Britton Halford.
Robert Alexander Horne.
Matthew Lang.
Keith Maurice Levi.
Albert Lewis Levy.
William Holdsworth Macfarlane.
Owen Herbert Peters.
Natale Sisca.
Robert Glen Vickery.
George Vincent White.

QUEENSLAND.

The following gentleman has been registered under the provisions of the "Medical Act of 1867" as a duly qualified medical practitioner:—

Earnshaw, Percy Alan, M.B., Ch.M., 1916, Univ. Sydney.

Books Received.

THE PROBLEMS OF PHYSIOLOGICAL AND PATHOLOGICAL CHEMISTRY OF METABOLISM FOR STUDENTS, PHYSICIANS, BIOLOGISTS AND CHEMISTS, by Dr. Otto von Fürth, Professor of Applied Medical Chemistry, Vienna, authorized translation by Allen J. Smith, Professor of Pathology, etc., Pennsylvania; 1916. Philadelphia: J. B. Lippincott Company; Demy 8vo., pp. 667. Price, 30s. net.

THE ART OF ANÆSTHESIA, by Paluel J. Flagg, M.D.; 1916. Philadelphia: J. B. Lippincott Company; Demy 8vo., pp. 341, with 136 illustrations. Price, 18s. net.

OBSTETRICS, NORMAL AND OPERATIVE, by George Peaslee Shears, B.S., M.D.; 1916. Philadelphia: J. B. Lippincott Company; Demy 8vo., pp. 745, with 419 illustrations. Price, 30s. net.

Medical Appointments.

The appointment of Dr. Francis William Cave as Officer of Health for the Shire of Kowree, Victoria, is announced in the *Victoria Government Gazette* of January 5, 1917, Dr. H. S. Bourke having resigned.

In the *New South Wales Government Gazette* of January 19, 1917, the appointment on probation for six months of Dr. Arthur Ernest John Scott as Junior Assistant Medical Officer, Lunacy Department, is announced.

The following have been appointed members of the Dental Board of South Australia: Frank Johnson, J.P., President; Edward John Counter, D.D.S. (Philadelphia); Frank Martin Swan; Arthur Murray Cudmore, F.R.C.S.; and Henry Simpson Newland, F.R.C.S.

Dr. Henry Mitchell Benson has been appointed Acting District Medical Officer and Public Vaccinator, Narrogin, W.A., during the absence of Dr. Mackie.

The appointment of Dr. Thomas Francis Hayes as Public Vaccinator for the Midland District, Victoria, has been confirmed.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxi.

Perth Public Hospital, Junior Resident Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	Brunswick Medical Institute. Bendigo Medical Institute. Prahran United F.S. Dispensary. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., incorp., Adelaide.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United F.S. Institute.
WESTERN AUSTRALIA. (Hon. Sec., 230 St. George's Terrace, Perth.)	Swan District Medical Officer. All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Department of Public Instruction—Appointments as Salaried Medical Officers, with duties which include the treatment of school children. Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance Association and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, Auburn, and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	F.S. Lodges, Wellington, N.Z.

Diary for the Month.

Jan. 30.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Jan. 31.—Vic. Branch, B.M.A., Council.
Feb. 7.—Victorian Branch B.M.A., Branch Meeting.
Feb. 13.—N.S.W. Branch, B.M.A., Ethics Committee.
Feb. 13.—Tas. Branch, B.M.A., Council and Branch.
Feb. 15.—Victorian Branch, B.M.A., Council.
Feb. 20.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Feb. 27.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.